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THE DIGNITY OF A CALLING IS ITS UTILITY.

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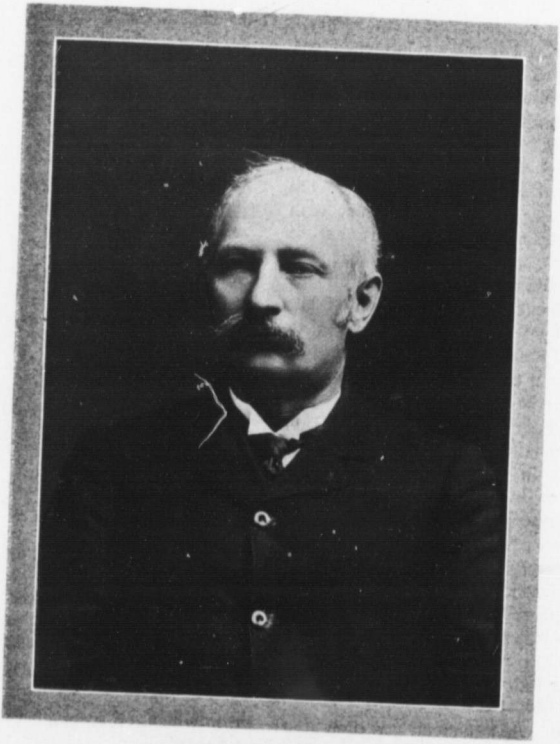


HONORABLE J. S. DUFF,
Minister of Agriculture.

Geology in Some of Its Relations to Agriculture.

BY PROFESSOR W. P. GAMBLE.

OF all departments of science, geology seems to me to be the one that depends most on a specially trained "common sense," which brings, as it were, into one focus the light disclosed by a great variety of studies—physical and chemical, geographical and biological—and throws it on the pages of that Great Stone Book on which the history of our planet is recorded. No one who has even a general acquaintance with the evolution of this department of science, can fail to see that the geology of each epoch has been the embodiment of the reflections of the minds by which its study was then directed; and that its true progress dates from the time when the common sense method of interpretation came to be generally adopted. This consists in seeking the explanation of past changes in the forces at present in operation instead of invoking the aid of extraordinary and mysterious agencies, as many of the older geologists were wont to do.

Tennyson, though not a geologist, stated facts better than any of the fraternity when he wrote:

"There rolls the deep where grew the tree,
O earth, what changes hast thou seen;
There where the long street roars, hath been
The stillness of the central sea.

"The hills are shadows, and they flow
From form to form, and nothing stands,
They melt like mist, the solid lands,
Like clouds they shape themselves and go."

It is not, however, our purpose in this article to enter into a discussion of the advantages which geology has reaped from common-sense judgments, but rather to point out the relation of the science to practical agriculture.

Nearly everyone is aware that if we dig down through the soil to a sufficient depth, we come sooner or later to the solid rock. In many places the rock actually reaches the surface, or rises in ridges, hills, or mountains far above it. The surface of our planet, therefore, consists everywhere of a more or less solid mass of rock, generally overlaid by a covering of loose materials. The upper part of these loose materials is the soil.

When the earth is removed from the surface of any rock mass, and this surface is left exposed, summer and winter to the action of the winds, rains and other atmospheric agencies, it may be seen to crumble gradually away. Such is the case even with many of those which, on account of their greater hardness, are employed as building stones, and which, in walls, are generally kept dry; how much greater must

the action be on such as are less hard, or lie beneath a covering of moist earth, and are continually exposed to the action of water! The natural crumbling of a naked rock thus gradu ally covers it with loose materials, in which the seeds find lodgement and germinate, and which eventually form a soil. The soil so produced partakes necessarily of the chemical character and composition of the rock on which it rests, and to the crumbling to which it owes its origin. If the rock be a sand stone, the soil is sandy; if a claystone, the soil is more or less stiff clay, and if the rock consists of any peculiar mix ture of those three substances a similar mixture is observed in the earthy mat ter into which it has decomposed.

Such observations led the geologist, after comparing the rocks of different localities with one another, to compare the soils in various districts with the rocks beneath them. The result has been that in almost every country the soils are recognized as having a close resemblance to the rocks on which they rest, similar, in fact, to that which the earth derived from the crumbling of a rock before our eyes bears to the rock mass of which it recently formed a part. The conclusion, therefore, is ir resistible, that soils, generally speak ing, have been formed by the disin tegration of solid rocks—that there was a time when the rock surface was without any covering of earth—and that the accumulation of soil has been the result of slow natural decomposi tion of the solid crust of the globe.

The cause of the diversity of soils in different localities, therefore, is no longer in doubt. If the rocks in two districts differ, the soils of the same are likely to differ also, and in a like degree.

But some may ask why the soil in some countries is of a uniform char- acter, that is, containing the same gen eral proportions of sand and clay, and general fertility over thousands of square miles, while in others it varies from field to field. A chief cause of this is to be found in the way in which the different rock-formations are ob served to lie, upon or by the side of each other.

Geologists divide rocks into two classes, the stratified and unstratified. The former are observed to be lying against each other in separate layers or beds, the unstratified rocks form more or less solid masses of material in which no lines of demarkation are dis cernable. In the accompanying dia gram S.L. represents an unstratified rock mass. Birdseye, Trenton, on the right to Corniferous and Hamilton on the left are stratified deposits lying over against each other. From S.L. a certain kind of soil will be formed, from Birdseye another, from Medina another, these rocks being different from each other.

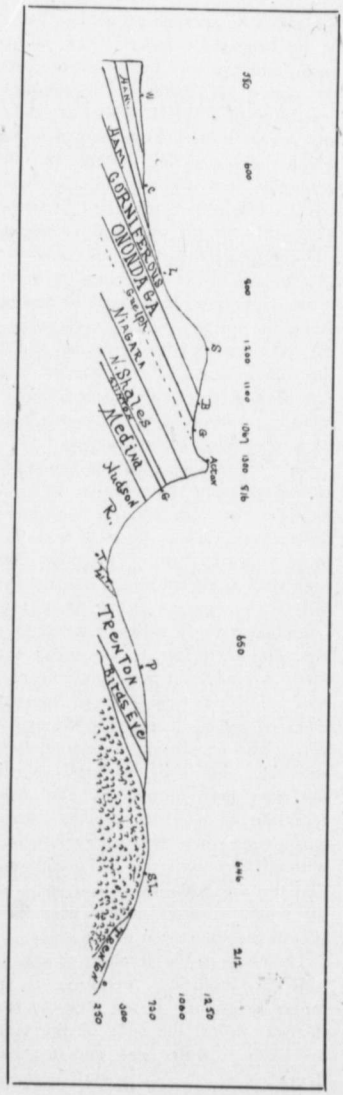
Let it not be supposed that we in tend to convey the impression that all soils partake of the nature of the rocks which lie beneath them. Such is not our intention, for there may from vari ous causes be a greater diversity among the soils of a district than even a large number of rock formations would indicate. Such is the case in Ontario for instance, the greater variations here having resulted from the work of glaciers during the Great Ice Age. The diagram, however, serves the purpose of illustrating the extent of uniform soil area, which one might expect from a study of the rock form ations the world over.

A further fact, and one equally im

portant to agriculture and geology, is the natural order or arrangement in which the stratified rocks occur. Thus, if Medina, Clinton and Niagara of the above diagram represent three different kinds of rock—a limestone, for example, a sandstone, and a shale, lying over each other in the order here represented, then in whatever part of the world these rocks are met with, they will always be found in the same position.

The further fact that stratified rocks are remarkably constant in general mineral composition, renders this knowledge of the order of relative superposition still more valuable to the agriculturist. Many different strata are known to geologists to occur on various parts of the earth's surface, each retaining its own place in the series. Most of these beds also, when they decay or are worn down, produce soils possessed of some peculiarity by which their general agricultural capabilities are more or less affected.

In the same countries or districts, on the surface of which divisions of the strata are seen to succeed each other very closely, the character of the surface soil and its agricultural capabilities are also seen to change as we pass from the rocks of one epoch to those of another. This variation is very pronounced in the more southerly part of the United States, particularly those which lie along the Atlantic border. Along the sea shore the soil is low and swampy and very fertile; further inland the surface gradually rises above the sea level, becomes firmer and drier, and supports quite a different type of growth from that observed along the shore. Tobacco and sugar are staple crops on this higher land. Some miles farther in



land the traveller reaches the edge of a drier alluvial plain covered with a thin forest of natural pine. The soil is poor and sandy. Farther inland another terrace is reached which is void of trees, the only natural covering to the thin soil being a species of grass. This soil can be tilled, and though deficient in water supply will yield fair crops of corn. Still farther in this prairie is passed and hilly slopes make their appearance, upon which clays and loams of various qualities and capabilities occur.

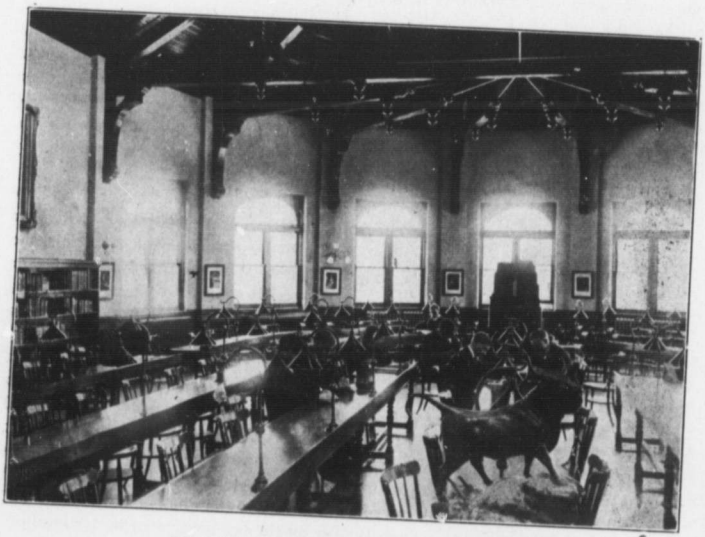
These changes in agricultural char acter and capabilities are coincident with the changes in the geological strata which form its surface.

It is necessary to guard the reader against occasional disappointment when he proceeds to examine the rela tions between soils and the rocks on which they rest, or to infer the quality of soil from the known nature of the formation on which it lies, in conform ity with what has been laid down, by mentioning briefly another set of forces which present themselves in nearly every country. Wind and water as well as glaciers already mentioned, are strong transporting agencies. Hence, in many places, the rocks and the soils naturally derived from them are buried beneath accumulated heaps or layers of foreign materials, each carried thither by its respective agency. On these ac cumulations of transported materials, a soil is produced which often has no relation in its character to the rocks which cover the country, and the na ture of which, therefore, one could not predict from an acquaintance with the formation on which it immediately rests.

But though it may be true, that here and there the natural soils are masked or buried by transported materials, yet the political economist may, neverthe less, safely estimate the general agri cultural capabilities and resources of a country by the study of its geological structure, the capitalist judge in what part he is likely to meet with a profit able investment, and the practical farmer in what locality he may expect to find land that will best reward his labors, that will admit of the kind of culture to which he is most accustomed or by the application of better methods will manifest the greater agricultural improvement.

The Massey Library and How to Use It.

BY EDITH M. DWIGHT, B.A., LIBRARIAN.



READING ROOM OF MASSEY LIBRARY. *Photo by J. W. Jones.*

LIBRARY work is a matter of such recent growth in Canada, and so few towns are provided with a library well classified and catalogued, that it seems appropriate at this beginning of a new year to draw your attention to the college library, and explain a few things which may seem very complex and purposeless to one unused to such matters.

The Massey library was given by the Hart Massey estate, and was built in 1901. Mr. W. E. H. Massey, the son, whose protrait hangs over the desk, laid the corner-stone and superintended the building. The first floor is given up to the College Assembly room. On the upper floor is the library proper.

The reading-room, which is the size of the Assembly Hall below, is fitted up with cases for reference books and long study tables which are provided with individual lights. As the order of the room has been recently changed, we shall give it in detail. In the book case near the door are the reference literature sets, and the reference books on the Bible. At the front of the room between the windows are the encyclopedias, statistical books, atlases and such general reference books. On the

center case are the dictionaries and historical sets; while at the back of the room, between the catalogues to the United States Department of Agriculture and the Experiment Station bulletins and reports, are reference text books and general reference books on agriculture. These text-books are all duplicates of those in the circulating library, and are kept on the reference shelves to serve as a sample of the best up-to-date text-books on agricultural and scientific subjects.

In the "Open Shelves" near the magazine room, are to be placed the new books as they are added to the library and any books on various subjects which are of interest, but may not be met with in regular study. It is hoped that by frequently changing these books, the students may become better acquainted with the books that are in the library; and that it will also give them an opportunity of handling the books without the disadvantage of looking over a large collection, such as they would find in the stackroom.

But the key to the books in the stack room must necessarily be made through the catalogues. The main catalogue is divided into two sections, the first arranged alphabetically by authors, the second by subjects. These latter are under such broad headings as Agriculture, Chemistry, and then are subdivided alphabetically, very much as the subjects are taught in the different departments of the college. The new catalogue which is in one alphabet of authors, subjects, and titles, will in time take the place of the main catalogue. At present only the new books added since October, 1907, are catalogued in it, and a few hundred books which have been recatalogued.

The index to the mass of material published by the United States Department of Agriculture and the various Experiment Stations, is given separately in their own catalogues. These bulletins and reports are most carefully analysed under minute subdivisions, which are used as subject headings. This material should be better known by the students, and also the means of using it more effectively.

The main part of the library, after all, is that which is kept in the stack room. This room is divided into three floors, with glass flooring. The steel cases run from the first floor to the top, twenty-one rows of shelves, and have a capacity for 80,000 volumes. The whole is made as completely fireproof as possible. On the first are kept the books belonging to the Entomological Society of Ontario, and a few of the older books of the Library. On the top floor are some classes of books which are not so frequently used as the scientific and literature works. But on the second floor (the main one) are the majority of the volumes. These are arranged according to subject, the regular books nearest the aisle, the periodicals, bulletins, and reports on a subject in the same case, but farther from the aisle. Thus we have all the material on a subject as close together as possible.

The stackroom is for the use of the professors and instructors, and also for such students as are following some special line of work, and wish to use whatever material the library has on the subject. For ordinary work, the amount in the library would usually confuse one, and for that reason it is much better to look up the material in the catalogue where it is more closely subdivided, or to have a few of the bet

ter books on a subject brought out for use in the reading room.

In the alcoves of the stackroom are provided tables and chairs for this special reference work, and here the reader is free to bring whatever books he may wish to use; provided only that he leave them there, to prevent confu sion in replacing them on the shelves.

It is obvious that books cannot be kept up to date, and to supply this de ficiency one must turn to the various periodicals taken by the library. The more technical of these are sent to their different departments in the College, but the current numbers of the majority are kept on file in either of the two magazine rooms or at the desk. Bound and back numbers are to be found in the stackroom. Little need be said of the importance of these, other than of the various reviews which prove so useful in finding ma terial on the subjects for the debates carried on during the year. To give this material, well indexed, there is the "Readers' Guide and Periodical Index" which is published monthly and ac cumulates into one alphabet quarterly and finally yearly. This has succeed ed the Poole's Index, which is a five yearly publication, indexing periodicals down to 1902. Both of these are taken by the library.

Besides these regular indexes, we are making one for ourselves, from the references which we have found for former debates, and also to articles in the magazines or in any books which may be needed to supplement the books that are on those subjects. In this way there will be collected a mass of minor material on subjects of pres ent interest.

Thus the library aims primarily to help the students in their studies, essays and theses, and also in their work for debates and speeches for the literary societies and the like. It is hoped that as the mechanical helps to the material contained in the books are perfected, that the library will prove a source of still greater benefit to the students. When they go out from the college halls, they should carry with them a love of books as such, and also a knowledge of how to obtain the most from any single book, or collection of books, and of how to use the cata logues, indexes and various aids that are provided for the use and guidance of its readers by every well-quipped library.

IT IS ENOUGH.

It is enough that in this burdened time
The soul sees all its purposes aright
The rest—what does it matter? Soon the night
Will come to whelm us, then the morning chime.
What does it matter, if but in the way
One hand clasps ours, one heart believes us true;
One understands the work we try to do,
And strives through Love to teach us what to say?

—*Gilbert Parker.*

Louisiana.

BY R. C. TREHERNE, '09.

[Mr. Treherne was, during the summer months, Assistant Entomologist on the Louisiana State Crop Pest Commission and had good opportunity of studying the country.—Ed.]

ONE of the most delightful, and at the same time, one of the most profitable trips that can be taken is one to the Southern States of the American Union. Nothing is more delightful than to see new sights in a land so vastly different to our own. New experiences undergone, new customs encountered and many delightfully varied scenes recounted, cannot help but be interesting and instructive to us here in Canada.

The sea trip from New York to New Orleans affords the most pleasant means of visiting the South, because the abrupt change from Northern to Southern conditions, is the more realized and consequently the more appreciated.

The Gulf Stream is indeed a wonderful gift of nature. Our contact with this mighty "Ocean River" was indicated by an increased temperature of the water as well as by the long strings of the Gulf Weed, which were very commonly to be seen stretching along its course. The water of the Gulf Stream as compared to the water of the Atlantic Ocean was a deep ultra marine. Nothing more superb in the whole realm of nature could be imagined than a scene presenting the deep blue waters of the Gulf Stream over which the moon was shining.

As the journey was continued southward, flying fish would now and then start from a heaving wave and skim the surface of the ocean like a bird on the wing. Shoals of playful porpoises would gambol round the bows of the vessel and presently troop off in haste as suddenly as they came.

Further south yet, the countless little keys or islets on the Florida Coast came into sight. The water near the land along this coast is very shallow as indicated by the color. Instead of the deep, blue tint of the Gulf Stream, the water here is of a bright pea green, caused by the close proximity of the yellow sands at the bottom.

Throughout the voyage the weather was of the most perfect description. As we drew near to the mouth of the famous Mississippi River, we were surprised by one of the sudden violent electrical storms which are very characteristic of the South. A brief description of this one, which took place at night, will be of interest. The storm came on with characteristic rapidity; the lightning speedily increased until, when at its height, it was terrible in its brilliancy. At very frequent intervals the entire heavens were illumined with a vivid flame, which left the eyes obscured in inky darkness for several seconds after each flash. Thunder roared constantly and the rain descended in torrents. Severe as this storm was, it did not last very long, and the fresh breeze following was particularly pleasing.

There is perhaps no river so tortuous

and winding in its course as the Mississippi. The bows are turned towards every point in the compass and that often within the space of a few minutes.

The situation of New Orleans is an unique one. The city is in a bend in the river—a bend so sharp that one half of the city faces the east and the other half faces the west. It is a common expression in New Orleans that "the sun rises and sets on the same side of the river." Hence the name of the "Crescent City" has arisen.

The residential portion of this Crescent City is typically southern in its aspect. Balconied houses, palms and ferns adorn the sides of the streets, giving a rich varied appearance to the thoroughfares. Magnolias, superb and magnificient, are conspicuous and numerous; the large glossy laurel-like leaves, giving them a rich and noble appearance; the beautiful white blossoms for which they are so famous, set in a background of deep green leaves, giving them an artistic effect that cannot be surpassed.

Louisiana stands first in the United States in the production of sugar cane, and second in the production of rice, while her exports of cotton, oranges and pecans bring to her citizens no small revenue. Hardly a more beautiful plant, while in growth, can be imagined than the sugar cane. This beautiful, luxuriantly-growing, grass-like plant attains a tremendous size in this Pelican State.

In the sugar sections, which embrace a large part of the alluvial lands of the southern third of the State, one may ride for hours through vast and well kept cane plantations. Probably no land in the world, not even those of the famous Valley of the Nile, surpass in original fertility the rich alluvial deposits of the Mississippi River. Unlike the lands of the Nile basin, however, the Louisiana alluvial deposits are not renewed annually as of old. A tremendous levee system traverses

BOLL WEEVIL INFESTATION.

Louisiana's fertile domains from the north to the south and from the west to the east. Along the Mississippi, the Red, Atchafalaya and the Ouachita Rivers and along numerous bayous, wind these huge mounds of dirt, covered with a rich coating of grass. Thousands of dollars are spent annually by both State and Federal Government in the extension and maintenance of a system which means almost every thing to the planters along the banks of these streams.

Louisiana is divided agriculturally into three main districts commonly termed the Cotton, Rice and Cane sections.

Cotton is grown over the larger part of the State; in the larger part, however, in the northern two-thirds. Both hill and bottom lands are utilized for this staple, the latter being by far the most productive. With the advent of the dreaded Cotton Boll weevil—the nemesis of the cotton planters—however, and the consequent necessity for

the admission of sunlight, hill lands with their production of smaller growth and earlier maturity are being much more sought after as cotton land than fomerly.

Cotton is planted in April and may be sown in drills in rows 4-4½ ft apart. The cultivation and growing of the cot ton crop is almost in the same crude state as it was in the days "Befo' de wa'." After the cotton has sprouted and grown to a stand it is thinned or chopped out by negroes with ordinary hoes to a proper distance between plants. After that, the attention given the crop varies in a large measure with the color and energy of the grower. The majority of cotton lands are worked by tenants on the "share sys tem" and it is this survival of the ancient procedures which has held cot-ton growing to its undeveloped state. The negro is not primarily a handler of machinery, and so long as the cotton

A COTTON BALE.

crop of the south is made by Ethiopian labor, just so long will the crude hand instruments continue.

To the northerner a field of cotton is both an interesting and unusual sight. The plants are broad leaved and much branched and attain a growth of from 2 to 3 ft. on the hill lands and 8 to 10 ft. on the more prolific lowlands. An unique characteristic is the unusual change in the color of the blossom. When the "square," as the bud of cot ton is called, bursts forth as the flower, one is greeted with a soft white blos som of mallow characteristics. If the interested stranger will visit this same flower a few hours later, he will won der what has become of the lily white bloom he left but a short while before, until he discovers that its place is occupied by a flower in all respects similar, except that it is of a deep pink coloration. A field of cotton with its blossoms in the various stages of the color is "a thing of beauty and a joy forever." With the falling of the blos soms appear the small balls which grow to the size of hen's eggs and in the late summer and fall burst forth with the fleecy staple for which the Southern States of the Union holds a practical monopoly. The seed cotton, as it is called, before "ginning," is picked entirely by hand and almost en tirely by negroes. An average picker will gather about 200 pounds of seed cotton in a day, but there are some ex pert enough to get as much as 500 or 600 pounds to the man. From the field the cotton is sent to the gin, where the seed is separated from the lint, and the latter compressed into bales gener ally weighing in the neighborhood of 500 pounds. In this form the cotton is shipped to the various markets. For foreign markets the bales are recom pressed to a smaller bale. Some of the huge ocean steamers carry as many as 30,000 of these compressed bales, such a cargo having an approximate value

of $1,500,000. Louisiana's cotton crop will average in value in the vicinity of $12,500,000 per annum. Her sugar crop bringing to the pockets of the planters practically the same amount.

The sugar cane section of the State embraces a large portion of the southern half of the State, cane attaining its best growth on alluvial lands, and often reaching a height of 12 to 15 feet.

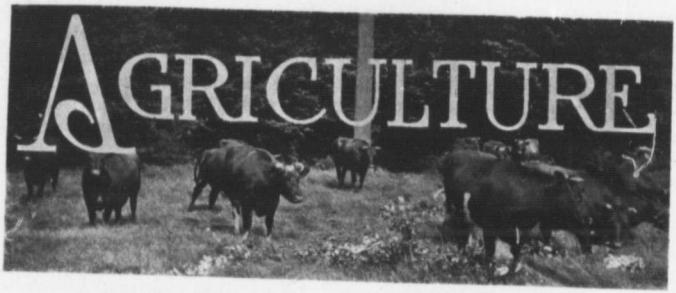
Rice is grown almost exclusively in the lower third of the State, particularly in the vast prairie lands of the southwest portion. Several hundred acres, however, in the northeast part of the State have recently been put into rice with good success. In the alluvial sections the crop is cut by hand, but in the large prairie holdings the crop is handled almost entirely with modern machinery.

The orange industry is developing rapidly and should reach considerable magnitude, because the Louisiana oranges are the finest grown in the United States. The principle orange sections are the Gulf Barishes. Pecan growing is another thriving industry; these nuts being perfectly adapted to every portion of the State. Passing from the cultivated lands of the State, the visitor finds much of interest in the marsh and swamp areas of Louisiana. The Sweet Gum, otherwise called the "Tree of Heaven," is most common, and at the same time one of the most beautiful of the trees. The cypress grows profusely, bearing on its branches festoons of Spanish Moss—peculiarly saprophitic on a great many trees in Louisiana. China Berry, or the Umbrella Tree, the Banana, the long leaved Pine, the Live and Water Oaks, Sweet Olive and the Camphor Tree are a few of the unusual forms of floral growth which are characteristic of Louisiana scenery.

Such in brief is Louisiana. But the picture falls far short of portraying an iota of her wondrous resources, her marvellous climate and the beauties which are all her own. I have not mentioned her salt and sulphur mines, which are among the greatest in the world, nor have I said aught of her tremendous deposits of oil and natural gases, her strata of coal or the incalculable horse power within her thousands of miles of waterways.

Within her soils lies fertility, beneath her soils lie treasures untold, while rearing their heads in proud array, acres of virgin timber, as yet undefiled by the woodman's axe, promise to her children building material and fuel for many years to come.

With such a combination of agricultural and mineral wealth, with as yet but a small percentage of her rich soil in cultivation and with a people who are just awakening to the wondrous possibilities before them, the mind can with difficulty picture the future grandeur of this semi-tropical commonwealth.



Care of Lambs in Winter.

BY JOHN CAMPBELL, WOODVILLE.

THERE are three periods in lamb hood when a little extra care pays, and that right well.

The first is at birth, and for a week after. The next is at weaning time, and fully as important is the time of changing from fields to the winter quarters. That should not be done hastily, nor should it be too long de layed. A good way is to begin housing and yarding at nights when the wea ther becomes wet and cold; indeed the same may be done with good results during the day when late cold fall rains occur. It is better not to get their fleeces saturated under such condi tions. Yarded at nights with shelter with open doors, and the running out in day time, assisted by trough-feeding of something tasty, will accustom them gradually to winter conditions and tend to keep up a regular steady growth, which, after all that may be said and done, is the keynote to the successful production of our meat producing animals. How to maintain that continous gain in weight for the butcher's satisfaction in the first place, and afterwards to so tickle the consum er's palate as to cause them to want more and more, and at the same time to consider the producer's welfare is the problem. The lambs kept on for breeding purposes require practically similar attention so far as the ordinary flocks are consid ered. Were we to have the charge of a pure bred flock of a high standard the aim would be much the same, only that feeding would be more liberal, with a view to as early development of frame and flesh—not fat—as could be safely secured. To treat of such a flock would be another story, apart from that we now have on hand. The lambs brought in for the winter, how can we feed cheaply, profitably and with the least cost of labor? There are certain feeds which have been found specially suitable for the purpose. Sweedish turnips for the succulent part are unequalled. Unthreshed peas—of the smaller-grained varieties, cut at a rather green stage—well saved, pro

vides the best known grain part of the ration, to which may be added some nutted oil cake and wheat bran, in case of pushing them on more rapidly, and giving a good finish to the carcase, comparatively early cut clover hay, or, better still, alfalfa hay properly cured, completes our bill of fare.

Lambs dipped in early summer and again in October, given in winter quarters proper quantities of the above, with fresh water daily in reach, and the salt box never empty, have all the conditions necessary for making them comfortable and therefore very nearly certain to make profitable and satisfactory gains. Of course they must be kept dry underfoot and overhead, but must not be kept in warm quarters. A large, open yard to run in at will, and shelter from wet and storm when they wish, is an ideal condition.

Given a fair feed of unthreshed peas in the morning; two to four pounds each, of turnips, cut finger-size—not pulped nor sliced—at noon; a full feed of clover hay in the early evening, with cut turnips, similar to noon allowance, fed at 8 p.m. will make them thrifty and happy and tend to have the shepherd also well satisfied with his charge.

It will be noticed that all feeds except the cut turnips are given just as taken from the fields. No threshing, grinding, no cutting box used, all of which mean the saving of costly labor and increasing the profits.

Drainage Problems.

BY W. R. REEK, '10.

[Mr. Reek has spent the summer taking levels and making out drainage plans for farmers throughout the Province, and so has come face to face with drainage problems. —Ed.]

AMONG the many problems which confront the agriculturist to-day, those connected with farm drainage rank with the most difficult. They are difficult because we are dealing with the soil as we have it, not as we should prefer to see it shaped or moulded.

The contour of the land gives to many in some sections excellent drainage. We find in a rolling country the hills draining into natural ravines, thus leaving the farmer but one drawback. On the great majority of side hills there are points which we term "springy"—they remain wet longer than any other portion. This peculiar occurrence is caused by an impervious layer not permitting the water to pass through, but conducts it along to a lower part, and finally it oozes out upon the surface. Many different ideas are put forward to aid in solving this problem, but no doubt the best plan is to lay a main drain along the foot of the hill and then lay laterals which pass through the wet land leading into the main. In such a case no difficulty is experienced in obtaining fall unless it is along the outlet drain.

Rolling countries often have in them bog-holes and sloughs with no appar

ent outlet. Water stands in them for months until evaporation does its work. Very often, in such a district, there is natural drainage in a certain direction, but between the outlet and the hole, a ridge, usually sand or gravel, has been deposited. The questions arising in the farmer's mind are, how deep a cut is necessary to drain the hole? what size tile is required? and is the final outlet deep enough? Such holes have, very often, a natural outlet, but which is in a round-a-about way, thus involv ing the farmer in assessments on sever al ditches, and finally bringing him back to the same outlet which he might use by making a cut; the question is, which is the cheaper?

The flat country is the most difficult to drain. Outlets must first be obtained which are usually large open ditches. Much of this land has such a small amount of natural fall that the drainer has to depend upon depth at the outlet and at the source to give the required grade. It is quite obvious that no long drains will be laid. Such farms require, sometimes, two or more outlets, de pending upon their shape. The problem is to lay the drain regularly at the least grade—two inches in 100 feet—safely, and have them the greatest possible length. There is a diversity of opinion as to the distance apart and depth of drains in a low-lying level country. Many to-day are maintaining that drains 18 to 24 inches deep and 35 to 40 feet apart give better satisfaction than drains 30 to 36 inches deep and 50 to 60 feet apart. Time and experience only will answer this question. On such land it is necessary to follow a definite plan so as to know where each drain is, thus facilitating matters if a tile becomes clogged, which is a common occurrence where drains are laid with little fall.

Investing capital in tile when suffici ent outlet is not provided is money thrown away; many tile are now in with almost no outlet whatever. In level countries the large ditches con structed for surface drainage are deep enough to give all the outlet necessary. The districts where it is just rolling enough to give excellent surface drain age, as a rule, have very poor outlets for underdraining. These people, not having the drainage question very prominently before them, never provid ed ditches deep enough which would serve as outlets, and are now facing the difficulty of either enlarging local drains or laying very large tile. No matter what kind of a general outlet is chosen, in most cases, the owners of adjacent farms are involved, and with out a doubt this is the greatest diffi culty to be encountered. Sometimes agreements can be made, but too often very petty cases have to be settled by township engineers, thus incurring ex penses which would construct a con siderable portion of the outlet. In all cases, if possible, a man will desire to have his outlet entirely upon his own property—that is, until it reaches a local or township ditch. To do this it is sometimes necessary to drain against the natural grade, which can only be accomplished when a deep outlet is near. In such drainage work the great est of care must be exercised while laying the tile, because the eye cannot, then, be depended upon to a very great extent.

The contour of the land gives most difficulties, but the nature of the soil must also be considered. There is lit tle trouble with clay, but quick-sand is very difficult to deal with. Tile have to

be laid very tightly and often the joints have to be covered in order to prevent the sand from entering and clogging the drain. Quite often the tile will not remain where they are placed, and it is necessary to have some solid material in the bottom, such as boards or clay, and then cover them with clay, straw or similar materials, to aid in holding them firmly. In such cases it is important that all the possible fall be utilized.

The nature of the soil, together with kind of crops to be grown, decide the depth and distance apart that the drains shall be. If small fruit is to be grown, as a rule, the drains are placed somewhat closer and shallower than in other cases. In orchards, especially apple, pear and plum, the distance has to be regulated by the rows of trees and they must be placed deep enough to be away from the roots. In peach orchards this difficulty is not nearly so great. Where grain is grown principally there is no such trouble unless a willow, alder or elm, happen to be growing near the outlet.

Many other difficulties confront farmers, such as the protection of outlets, methods of digging drains, size of tile required to drain a certain area, and the estimated cost. A great many today have neglected underdraining because they estimated the cost too highly. This differs with the soil and amount of large tile required.

To drain successfully any man must have an intelligent idea of the principles involved, have a grasp of the lay or levels of his land and understand how the drains should be when properly constructed. If satisfactory settlements with others involved in outlets are to be made, he must be an ardent student of human nature.

SEEDING TIME.

Improving Cereals by Selection.

BY PROFESSOR KLINCK, MACDONALD COLLEGE.

THREE systems of improving cereals by selection are generally followed at the present time —the German method, the Centgener method and the head-row method. A fourth might be added which aims at combining into one system the most desirable points embodied in the two methods last mentioned.

Some authorities attach but little importance to selection of any kind, believing that any improvement so effected is but temporary, and that grains so improved will quickly revert to the orginal condition as soon as selection is discontinued. Others, and their number seems to be on the increase, are of the opinion that our standard varieties of grains, even when pure, respond readily to intelligent selection and furnish a field sufficiently wide to enable the breeder to isolate strains, well adapted naturally to the different soils, climates and uses to which the grains would be put.

The main reason why more is not known regarding the merits and demerits of these systems is that the methods themselves have not been thoroughly tried out on a comparative basis. Research work on this problem extending over a series of years would throw much needed light on the principles underlying the various systems now in vogue, and would be of inestimable service to all engaged in breeding problems.

The German system consists in making a choice of heads in the belief that intelligent selection, directed along the desired lines, will gradually, by accumulating the desirable characters and eliminating the undesirable, raise the average standard of productiveness. Instead, therefore, of selecting individual plants showing a favorable deviation from the usual type, and increasing the progeny of these, the advocates of this system follow the practice of selecting the largest and most promising heads in the field. These heads, when threshed in bulk, form a composite sample which is used for seed the following year. The aim of these breeders is to improve the ordinary varieties by continuous se

lection, and, in order that all the good qualities of a large number of different individuals in the variety may be retained, they prefer to draw upon a bulk sample for foundation stock rather than limit themselves to individual mother plants.

In accordance with this idea they select each year in the field, those heads which conform most nearly to the standard desired. The progress, while slow, is assumed to be unlimited; whereas the more rapid improvement effected by the selection of single deviating mother plants is assumed to be limited. It is of interest to note that Darwin has, in large measure, founded his theory of gradual improvement by the accumulation of slight favorable variations, on the German theory and practice of cereal improvement, and frequent reference is made in his "Origin of Species" to the work of the Germans in this connection.

A modification of the field selection method of the German breeders has come to be widely recognised and applied in Canada. It consists in discarding all inferior kernels for seed purposes, and in sowing only the largest and best. Some cerealists make the division on the basis of size of grain; others determine the grades by the specific gravity. The advocates of the first system, basing their conclusions on many years' careful investigation, maintain that the selection and sowing of the largest and plumpest kernels has produced a marked increase in yield and an improvement in quality; the other school maintains that, while the specific gravity method is preferable to the selection based on size alone, still no permanent improvement can be expected for the reason that no attempt is made to separate hereditary strains.

Within recent years the German method has been vigorously assailed by the advocates of the individual plant system. It is probable that greater uniformity in the progeny can be secured in a short time when the single mother plant is made the basis of selection. It is, however, necessary in following this system to bear in mind that the projected efficiency of promising mother plants differs widely, and that a comparative test of these individuals must be made for a number of years according to the centgener or head-row method, else a heavy risk will be incurred of sacrificing productiveness to uniformity.

The idea of selecting individual plants, in one or other of its various forms of application, is by no means new. Le Couteur, an English breeder, seems to have been one of the first to discover that fixed varieties are, in reality, made up of individuals of many distinct types and that these individuals possess the power of transmitting their character to their offspring. By isolating the outstanding individuals and multiplying their progeny he produced new varieties of remarkable uniformity and exceptional productivity.

Nilsson, of Svalöf, Sweden, is regarded as the foremost advocate of individual plant selection at the present time. In his first attempt at improvement work he followed the German method, but finding the results unsatisfactory he changed his system and has now adopted methods comparable with those of Le Couteur.

Professor W. M. Hays, of St. Anthony Park, has effected great improvement in wheat by the individual plant system. His early work was

confined almost wholly to the development of methods which would render possible the growing of the progeny of large numbers of isolated mother plants under uniform conditions. In 1898 he developed his centgener system—a system very widely followed at the present time.

The Centgener System.

To secure suitable plants for centgener trials, foundation beds are planted from the choicest stock. In some cases the seed for these foundation beds is obtained from a bulk sample, in other cases the seed is procured from the best heads or even from the best plants growing in the trial plots. These seeds are planted four inches apart each way. At harvest time the medium and poor plants are eliminated and the exceptional individuals remaining become the progenitresses of new strains. The following year one hundred seeds of each isolated mother are planted four inches apart each way in a small plot. By this system many groups of progeny are grown in comparison with one another under conditions as uniform as it is possible to provide. At harvest time the best five plants are harvested separately and are saved to continue the test the following year. The remaining plants are threshed in bulk and the total weight produced by each centgener is divided by the number of plants which grew in the centgener, thus giving, as a basis for comparison, the average yield of grain per plant. After three to five years' trials those centgeners demonstrating their superiority, as shown by the performance record, are multiplied and transferred from the nursery to the variety test plots in the field. All centgeners which have failed to reach the standard required are now discarded so that the necessity for expensive field trials is reduced to a minimum. By this system a statistical record shows the ability of mother plants to transmit their productiveness to the progeny.

The Head-Row Method.

In this system a large number of good heads from the best plants growing in the general field is harvested, and after a rigorous selection the poorer ones are eliminated—only a few individuals out of thousands being retained. Full notes are taken on these and thirty grains from each head are planted in rows from six to twelve inches apart, depending on whether or not the rows are to be cultivated. The plants are generally placed six inches apart in the row.

Careful notes are taken during the growing season, and at harvest time an inspection of the rows reveals the most desirable ones. Plants of outstanding merit are selected from these choice rows for future head-row planting, and the row is then harvested in bulk and the yield obtained is compared with other rows. Very few choice plants are selected for future head-row planting from the head-rows themselves; the principle source of new blood is the general crop.

It will be noted that this system aims, not at the improvement of plants by selection, but is, rather, a system devised to enable the cerealist to isolate and multiply the great producers already existing.

The advocates of this system claim that, in addition to saving a year's time, the head-row method has a decided advantage over the centgener system in that it makes possible the handling of a larger number of plants; and, as new selections are made each

year from the general field, the breeder's chances of getting desirable mutants are increased. It is further claimed that the head-row system lends itself more readily to the early elimination of inferior strains.

The Nebraska Station has demonstrated the wisdom of testing the progeny of mother plants for two or more years before discarding them. Professor Montgomery, who is in charge of cereal improvement in that State, is strongly of the opinion that some of these exceptional mother plants—mutants, we may call them, if they continue to reproduce themselves true to type—require, in some instances, several years to demonstrate their superiority; as other mother plants, which have a wide range of fluctuating variability, may out-yield them the first year or so, but will then fall below the normal.

Minnesota was the first American exponent of the centgener method. Kansas is an ardent exponent of the head-row system. A method combining the most desirable features of both is being followed at Nebraska and Ste. Anne.

Photo by Arthur Brown.

SCENE ON THE SPEED, GUELPH.

Bananas in Jamaica.

BY JOHN BARCLAY, KINGSTON, JAMAICA.

As Secretary of the Jamaica Agricultural Society for a number of years, Mr. Barclay has accomplished much for the promotion of Jamaican Agriculture, and is a recognized authority on "The Banana Industry."—Ed.

THE trade in bananas has grown of late years to an enormous extent. The United States imports about thirty-seven million bunches principally from Jamaica and Central America, Jamaica accounting for twelve million bunches last year. Great Britain imported about seven million bunches of bananas altogether last year—from Jamaica 1,500,000 bunches. from Costa Rica 3,133,679 bunches, from the Canary Islands 2,500,000 bunches. For the year ending 31st March, 1907, Jamaica exported 16,000,000 bunches and for the following year 13,000,000 bunches, drought being the cause of the decrease.

The great commercial variety of banana is what is called "Martinique," known throughout the United States and Great Britain—no matter whether it comes from Jamaica or Central America—as the "Jamaica Banana." This plant grows to a large size, attaining a height of sixteen feet with a spread nearly as great, and produces, on suitable soil, a large bunch with large fingers. The banana that goes to Great Britain from the Canary Islands is the China or Dwarf; this grows on a short stem less than half the height of the large banana, and produces a shorter bunch with shorter fingers. Some of this variety enters the United States from Hawaii through the port of San Francisco, but not to any appreciable extent. This variety is also grown in Fiji and exported to Australia and New Zealand. The dwarf variety is not so subject to being blown over by the wind; it does not require so rich a soil, but the fruit is not so firm and does not carry so well as the large variety; this is why it is not grown as largely in Jamaica, although from its less exposure to wind it would be of great advantage in case of hurricanes. Although it is not more than a journey of seven to

ten days from the Canary Islands to Great Britain the bunches are wrapped in cotton wool and shipped in cases, so that they arrive in beautiful condition, free from bruises and specks, while the Jamaican banana sent to Great Britain

Photo by T. D. Jarvis, B.S.A.
BANANA PLANTATION.

is cut when only half full and is shipped bare, so that many of the bunches arrive with black specks and they never ripen to the full rich flavor they attain in Jamaica. The journey to the United States being only four or five days from Jamaican ports, the bananas can be cut full in the winter time and three-quarters full in the summer time, so that they arrive there in good condition and ripen with the proper flavor. The bulk of the bananas used in Canada first pass through the United States, only a few entering from Halifax. What is wanted to encourage this trade as well as much of the general West Indian trade to enter Canada direct, is a subsidized line of steamers to Halifax or St. John's, N. B.

Botanically the banana is called Musa Sapientum, and its close relation, the plantain is Musa Paradisciaca. In the East Indies both varieties are simply called "Plantain," but in the West Indies no one ever confuses the word "banana" with "plantain." The different varieties of banana are easily distinguishable from the different varieties of plantain at a glance (to those familiar with tropical plants of course, although to the unfamiliar eye there will appear to be no difference). Bananas are used as a fruit, plantains as a vegetable, requiring cooking. There is a physical difference in the plants, at least in the common variety of banana and the common variety of plantain, so much so that the writer could usually tell which plant was a banana and which a plantain if blindfolded, by simply passing his hand along the tree. Plantains are much used as a vegetable in the West Indies and Central and South America, but are not exported north. The plantain is not so prolific as, and requires more favorable conditions for its best growth than, the banana. It is generally supposed that the banana will grow anywhere in the tropics, but this is not so; it requires fertile soil and a plentiful water supply, if not directly from the clouds, then by means of irrigation; the richer the soil the better it is for banana culture, provided that the land is not sour.

Virgin forest land, if the trees are cut down and burned, makes the best and most lasting places for cultivation, but very few of the plantations in

Jamaica when first planted were on virgin forest land; yet many of them have been producing fruit twenty years without rest. Most of the plantations were old sugar-cane estates, and, especially where the soil is alluvial along river sides, they have given for many years splendid results, and for some years at first with very little cultivation.

The longer these lands have been growing bananas the better treatment they require. At first many of the plantations had no drains and never were ploughed or forked, and yet they produced large bunches and heavy crops. As the years went on more cultivation was required to produce the same results, trenching was carried out and still more trenching and deeper trenching, drains and deeper drains have been put in and cleaner weeding has been done and where ploughs could not be used deep forking has been carried out, twice and three times a year. Many of the banana cultivations are on hillsides where ploughing cannot be done, and a strong four pronged fork is used. Manuring is also being done now as far as is possible, but as the stabling of stock is not carried out as on farms in the North, very little home-made manure is available, and as there are no great cities, there is no getting waste material from that source. Artificial manures have not been found successful so far, although different combinations have been and are still being tried experimentally. The available fertility in many of the old banana lands is still high, and the chemical fertility very high. What is required in plantations is additional humus, and this is being obtained through the agency of green dressings, principally cow peas, and mulching with all the vegetable material that can be got. Formerly the banana trash used to wrap the bananas from the plantations to the wharf was flung away, ultimately to be burned or cleared off into the sea; now large planters are having it carefully carried back and spread in the fields. Where there are no established crops like cacao grown through the bananas the fields also are now being thrown up for a number of years and left under pasture, when they quickly regain fertility. When they are taken up again they are ploughed and cross-ploughed, where the plough can be used, otherwise they are forked, and, immediately the bananas are planted, cow peas are planted through them, to be turned into the soil when blossoming.

Photo by T. D. Jarvis, B.S.A.

A COOLIE'S DWELLING.

The great object of a banana planter is to get as much of his fruit cut in the months of March and June inclusive, when the prices are high, and to do this to the best extent constitutes the science of banana growing in Jamaica.

The new fields are planted between January and March, the time depending upon the heat and humidity of the district and the natural fertility of the soil. Bananas are grown commercially to an elevation of about 2,800 feet, but owing to the long distances from the interior the large plantations are confined to places where transport is not lengthy either to railway or sea. But small plantations exist all over the island up to the elevation mentioned, and in the interior parts the soil is still very rich, so that production is cheap, which, for small cultivators, partly makes up for the cost of freight. The higher the altitude the longer the time required for the plants to grow. Fields are usually cleared and made ready for ploughing or hoeing from October to January. The suckers to be planted are now carefully chosen; the old sucker that has already borne and had a bunch cut is of no use to plant, and stout young suckers about half grown are dug out, the stalks cut off, and only the bulb-root selected for planting. Holes are dug two feet square and one and a-half to two feet deep, and left open for a week or two. This root bulb is not planted upright, but is laid against the side of the hill and the earth filled in and trodden down until it is well covered. In about a week a green shoot will appear, probably several sprouts, and after these are about a foot high the strongest is chosen and the others cut out. It is most usual in Jamaica to plant banan as twelve feet apart, but in some places where the soil is very fertile and more than one stem is allowed to grow at the same time, they are planted fourteen or fifteen feet apart. As a rule they are so pruned that one main stem grows at a time with two others smaller following. If two or three are allowed to grow about the same height they interfere with each other's growth, take longer to shoot, and do not give such good bunches, unless the soil is very fertile indeed. But a good many planters have soil that can do this. Even then, although three large suckers the same size may produce three good bunches at nearly the same time, they will certainly delay each other's growth. The deeper the shade is in the banana plantation the longer the bunches take to fill out. In highly cultivated places in Jamaica, although the soil is not now so rich as the fresh forest soil of Costa Rica, quite as much fruit is cut per acre as in Central America, through better knowledge of pruning and the habits of the banana plant. This may seem strange, but is there not a parallel in Northern agriculture through the land being worked better?

The average yield of grain on the very old cultivated lands of Great Britain is higher than on newer lands in the United States and Canada. It also thus comes about that although a banana from the planting of the sucker may only take twelve months to grow and mature, and bear a bunch sufficiently full for cutting, when the field is covered with large waving bananas and the shade is dense below, the following suckers or ratoons from the moment they peep out of the soil take a much longer time to grow. They have to play second fiddle or even third fiddle to the larger plants of

which they are the off-shoots. So in timing the bananas in Jamaica it is usual to choose the best young suckers just six inches through the soil from August to September, which are to fruit eighteen or twenty months later. In old ratoon bananas such suckers may even take two years to mature.

Of the many suckers that grow out of the ground the best one or two are selected and the others are cut out. In some plantations clean weeding is practiced, that is, weeds are never allowed to grow to any size, before they are hoed out, and ploughing or forking and cultivating is constantly kept up where there are no staple crops like cacao growing between. In other plantations, especially those on the hillsides, it is the practice to allow the weeds to grow to a good size so that when they are hoed something of a mulching may be left on the ground. Where forking is done on banana and cacao plantations a system of vertical forking is now practiced, that is, the soil is not turned over, but the fork is held straight and driven in, shaken back and forward, and then the crust of the soil only broken. This aerates the soil, opens it and allows the rain to sink in thoroughly, and does no damage to the roots of the cacao. To turn over the soil with the fork would mean the breaking, wrenching and tearing of hundreds of roots. This is exactly what must be avoided, because of the danger of rot starting or grubs attack-

Photo by T. D. Jarvis, B.S.A.

BANANA PACKING.

ing the damaged roots. The soil may, however, be broken up close round the banana roots only, so as not to interfere with the cacao. Owing to frequent droughts of late, mulching has become a favorite method of conserving moisture on light soils. In covering the soil with a mulch it is necessary that the surface should first be broken up well and have absorbed plenty of moisture; that is, the surface soil should be loose, and the mulch

should be applied after rain. Then the effects of a good mulch are wonderful and even bananas, which transpire moisture from their broad leaves to such a great extent, will go through months of dry weather without hurt.

Bananas when planted in good soil from January to March of one year begin to shoot their blossoms from nine months to a year after—in the cool hills they take three months longer. The bunch takes from three to four months to become fit for cutting. From October to March they take a month longer than from April to September, and in old fields where the shade is dense they take still a month longer to fill up.

The bunches are cut with the aid of a long sharp-pointed stick and the indispensable cutlass. The tree gets two or three slashes with the cutlass, or on a very tall tree, a jab with the sharp stick to bend the stem down, but not to break it clean through, so that the bunch as it comes down can be caught, and let down gently to the ground. If the stem were cut clean through, the bunch would come down with a crash. All the operations in cutting, hauling out of the plantation, wrapping with banana trash, carting to rail or port, and when the steamer cannot come alongside a wharf, taking out to the steamer in the bay on a wherry, require to be done with great care. Buyers reject freely if the fruit is bruised, or too thin (that is, not fit enough), or too short, and then the fruit is sold out locally for what it can fetch. Sometimes when fruit is very plentiful, and the demand not keen, thousands of bunches are rejected, and there has been such a glut that bunches would hardly be taken away for a penny a bunch. But that, fortunately, seldom happens. Steamers turn up with the greatest regularity, sometimes three and four on the same day at some ports. Prices vary; between March and June inclusive, the highest price is £12, 10s. 0d. per 100 straight bunches or "payables," is paid at the port—correspondingly less in the country where railway freight has to be paid; the lowest is usually £5 per 100, and the price varies between these two figures according to the month. In banana parlance, a bunch of bananas is not a bunch unless it has at least nine hands with a minimum number of twelve fingers on each hand; it generally has more. Anything larger sells at the same price, and there is thus no incentive to grow large bunches. As bananas are sold by weight in the North, the grower is not fairly remunerated on this system. An eight hand counts as three-quarters, a seven hand as half, and a six as a quarter, but as there are, say, a minimum of seventy-two fingers on a six hand, eighty-four on a seven, ninety-six on an eight, one hundred and eight on a nine, it will again be seen how the buyer gains by this system in buying, and then again when selling by weight.

How much Jamaica depends upon banana-growing may be understood when out of an export trade of a value of about two million pounds, bananas are responsible for nearly half the value.

A Valuable Early Apple.

BY A. McNEIL, OTTAWA.

The Duchess of Oldenberg or, more briefly, the Duchess is one of the Russian varieties introduced in the early part of the last century into the United States. Its many good qualities commended it to the apple growers of North America so that it is now very largely planted. It is of good size and

ALEX. McNEIL

attractive appearance. Its quality, both for culinary purposes and as a dessert fruit, is agreeable to a very large proportion of consumers. It ripens somewhat unevenly; but the fruit is usually very uniform in size. It is not readily attacked by scab and is exceedingly prolific. The tree comes into bearing quite young. On the other hand, its first fruit is ripened very early in the season when other fruits are fairly plentiful and, compared with winter apples, it is soft and, therefore, more difficult to market at long distances. Thus, notwithstanding its many good qualities, plantings of it have been limited in the more favored apple sections very largely to the demands of the local markets, for which purpose it has few superiors.

In addition to being early the tree is exceedingly hardy. To this is due its being planted in places where other varieties would not flourish. In Northern Ontario, along the banks of the St. Lawrence River and the Ottawa River district, as well as throughout the Provinces of Quebec and Nova Scotia, it is a common variety. In fact, the only large orchards of solid Duchess apples are to be found in the colder districts where winter varieties, such as the Baldwin, Spy and Rhode Island Greening, are scarcely hardy. In the aggregate, however, there is a large number of trees of this variety even in Southern Ontario.

The fact that we now have a very excellent system of cold storage transportation on steamships and by refrigerator cars has changed very materially the market value of this variety in Southern Ontario. It is now possible to secure a refrigerator car service from any shipping station in Ontario,

connecting directly with the steamships at Montreal, having the very best of cold storage facilities to London, Liverpool and Glasgow.

There is still one weak link in the chain of cold storage. There should be some means of cooling the fruit before it goes into the refrigerator car and, in fact, before it is packed in boxes. This, however, can readily be supplied because there is no apple growing district in Canada where ice cannot be put up during the winter that could be utilized to cool fruit to a safe temperature before it is packed. But, even without this preliminary cooling, excellent results can be obtained by packing the apples in the coolest part of the day and loading them immediately up on the refrigerator car which will then be thoroughly iced and kept iced during the journey to the seaport.

The Duchess ripens its first fruits in the Counties of Essex and Kent the first week in August, and a few days later in all the Southern belt of counties bordering on Lake Ontario. It will be, therefore, possible to commence the shipping of this variety early in August and to continue from different parts of the Province during August and September. The time has arrived therefore, when Southern Ontario may take advantage of her climate and soil, and plant Duchess apples as one of the main standbys for early shipment. The price of apples for the month of August and the first part of September is quite equal to that of the winter months, and the quantity of fruit which can be grown per acre of the Duchess is perhaps as great, if not greater, than any other of the common winter varieties.

An additional advantage would be that it would add materially to the quantity of fruit shipped from Southern Ontario and aid in this way in securing better transportation facilities. The large cities of Ontario, Quebec and the whole of the Northwest and a very considerable portion of the Maritime Provinces must secure their earliest fruits from Southern Ontario. It would appear that here alone we have a sufficient market for a very large quantity of apples. But apples are not the only fruit. All kinds of fruit are relatively as early as apples, so that shipment of these early apples would be but continuing the shipment of small fruits, cherries, perhaps early peaches and tomatoes, and thus fill up the gap which would otherwise occur in the shipment of fruits until the heavy shipment of peaches, pears and grapes would begin in the month of September.

THE DUCHESS APPLE TREE.

If properly handled, these apples can be put down in any of the large fruit markets of Great Britain in perfect condition. The Duchess is well-known and could be shipped over a period of nearly two months from the different parts of Canada. This, in itself, would be a very great advantage, inasmuch as it would familiarize the merchants,

wholesale and retail, as well as the consumers, with the variety, so that it would become a standard and sell ahead of even a better quality of apple of a variety not so well known.

It is usually taken for granted that we cannot compete with the English growers in early apples. This, I think, is not the case especially in the markets of Liverpool and Glasgow. We have many advantages in Canada in growing fruit that will more than offset the differences of a long freight haul. But, I believe, if early varieties were grown in sufficient quantities and handled carefully, that Canadians could very soon capture the early apple market as well as the market for winter fruit.

It would thus appear that the Duchess apple is likely to assume a prominence in Canadian shipping in the very near future. Many wide awake fruit growers are already planting large orchards of this variety in Southern Ontario, and the large Duchess orchards that already exist in Northern Ontario are returning excellent profits to their owners. It would not, of course, be wise to confine one self to the planting of the Duchess alone. When the Duchess shipments have proved successful, there will be a demand for a succession in point of season, and it will be wise, therefore, for the fruit growers to consider what would be the choice for varieties coming somewhat later than the Duchess. The choice for this purpose would be somewhat larger than for the very earliest. The Colvert, Alexander, Gravenstein and, somewhat later still, the Wealthy can be highly recommended, and it is quite possible that all these varieties might be planted in Southern Ontario and give financial returns even better than winter varieties.

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Editorial.

Stock-Judging Competitions at Agricultural Fairs.

One of the most important farmers' organizations of the present day is the agricultural fair. It is an occasion on which some of the best products of the farm, be they grain, fruit or live-stock, are placed on exhibition and in competition.

A fall fair has several educational features. Its greatest significance is found in the fact that agricultural operations of the highest order are necessary to produce a prize-winning article. Then, too, the farmers' son cannot look at a prize-winning animal without profiting thereby, and, a representative exhibit enables us to form a good conception of the capabilities of the surrounding territory.

In a few localities there are held stock-judging competitions, in which young men under a fixed age are entitled to take part. This is a feature which is worthy of adoption by every show in Ontario where there is an exhibit of live stock. The ordinary requirements are that animals to be judged be placed, and reasons given for the placing.

Persons taking part in such a competition will derive much benefit. The average young farmer will tell you that he likes a certain animal, but he is scarcely able to tell you why. If asked to point out the strong points or the defects he will do so very imperfectly. But if he makes an attempt at judging a class and then hears the correct placing and the reasons, he will have called to his notice much that will

assist him when he again attempts to form an estimate of an animal. Then again the number of young men who always assemble to witness such a competition will take a greater interest when their acquaintances are judging and they will profit in proportion to the interest they manifest.

Such competitions will result in our young farmers becoming better judges, and, being better judges they will strive to rear an animal which will ap proach more nearly to what they con sider the ideal.

That such competitions are possible has been proven yearly at the Winter Fair, Guelph. Then, again, a similar competition was conducted at the Lindsay Agricultural Fair a few weeks ago. At that place, Mr. F. H. Reed, B.S.A., Specialist in Agriculture, had charge, and the event was one of the features of the fair. In each class there were many competitors, and the young men taking part came from many different parts of the county This widespread representation alone is significant, and will do much to aid similar competitions in future years. All that is needed is for some one to bring the matter to the notice of our Agricultural societies and this is a mat ter in which our ex-students should find scope for benefiting their fellow men.

Subjects for Debates.

Some few months ago we had occa sion to refer in these columns to the unsuitability of subjects often used for debates by the sub-societies, and also by the Union Literary Society.

A subject should be such that it would lend itself to logical argument on both sides of the question, and yet without one side so merging into the other as to cause confusion. There is no actual training in debate unless logical reasoning can be brought into play. Occasionally we hear a subject debated in which no argument can be adopted other than for each side to make a series of statements more or less relevant to the subject and the de ciding of the debate consists in placing one array of unproven or unprovable statements against the other.

The question arises, how is this mat ter to be remedied? It would seem that the custom of allowing the debat ers to select their own subject is not one to be relied upon. What seems to be needed is an advisory board who might be consulted from time to time or who might select a list of subjects anyone of which would be debatable. This board might consist of two or three members of the faculty or of the honorary president, one other member of the faculty and the president of the Union Literary Society. We are con fident that if a better class of subjects were used, the debates would be more profitable and interesting to both de baters and audience.

Our Illustrations.

We desire again to call the attention of our ex-students and our readers in general to the fact that they can assist the Re view by sending in il lustrations suitable for using in these columns. On going to print we were pleased to receive some photographs from Old Boys which will make very excellent illustrations in succeeding numbers. There also came to hand a few weeks ago several very fine mountain scenes, which were sent in anonymously. We are indebted for

these voluntary contributions, and shall use them to good advantage in our Christmas issue.

Theatre Night.

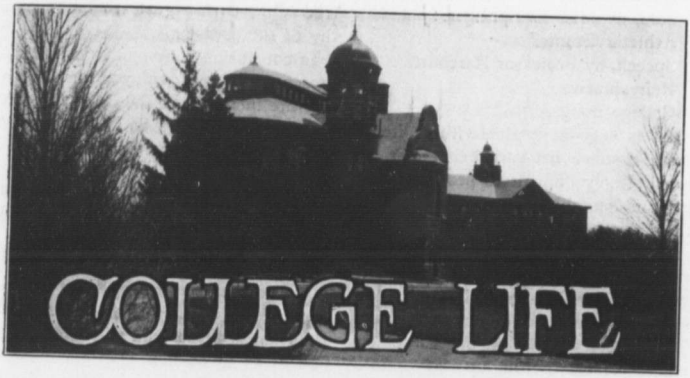
Man cannot always work. It stands to reason that he must have recreation both physical and mental. Therefore, the idea of having a Theatre Night, when all the students attend in a body, wearing their colors and making it an occasion long to be remembered, is recommended.

A good play is something which inspires and builds up character as well as provokes interest; it shines with a clear light upon many of the perplexing problems of the day. It also brings young people together in wholesome companionship where they learn that life's relations are pure and noble in their best interpretations. It teaches us to be kind, helpful and unselfish. We need this training along with the teaching we receive in the classroom to develop us into all round, broad gauge men and women. It is the all round man who can and does occupy the largest sphere of usefulness today. We trust that all the students will appreciate every opportunity to join in the pleasure and profit which a night of this kind affords.

BOOK REVIEW.

"Mosquito Life," by Evelyn Groesbeeck Mitchell, A.B., M.S., New York and London: G. P. Putnam's Sons, The Knickerbocker Press; 281 pages, 8 plates and 54 figures.

Few insects at the present time are attracting as much and as widespread an interest as Mosquitoes, and of none is a general and accurate knowledge more important than of these tiny but formidable carriers of disease. Not many years ago so little attention was paid to these tormentors that we were supposed to have only one kind of Mosquito; now over a hundred species are known to inhabit North America, and the list is being continally added to. Miss Mitchell's volume is therefore most welcome, inasmuch as it gives a full and carefully prepared account of the life histories and habits of all the important varieties. The anatomical structure and the external appearance of eggs, larva, pupa and adults are fully and clearly described and illustrated with admirable original drawings. Keys are given by means of which any species can with a little careful work be identified in any of its stages; these alone would be of the greatest value to students In addition to the scientific portion of the work there are chapters dealing with the more popular topics of the connection between Mosquitoes and malaria, yellow fever and other diseases. The book is an excellent one, and reflects great credit upon the ability and painstaking investigations of the authoress, who worked for some time as artist and assistant to the late Dr. Dupree, Surgeon-General of Louisiana; to his memory the volume is dedicated and to his help and guidance she gratefully ascribes a large share of her success. We heartily commend the book to everyone who desires to have some satisfactory guide to a knowledge of these most important creatures.—C. J. S. B.



"The autumn skies are flushed with gold,
And fair and bright the rivers run;
These are but streams of winter cold,
And painted mists that quench the sun." —Hood.

November, that month which breathes of the aproaching winter, is upon us! Have we yet realized that in some half dozen short weeks we shall be in the middle of those awe-inspiring bugbears, the "exams?" I think not; yet, I would say, "Do not be dismayed; we are in precisely the same position that many thousands of students have been before, and will be after, our time. Now is the psychological moment to seize Time by the forelock and prevent that honored gentleman from running away"; therefore, I say, "Get down to business and all will go well."

These remarks are of a somewhat curt and dictatorial nature, but yet we have the audacity to proceed. What is to be said is this:—Don't forget "College Life." We come to this college with the most praiseworthy object of extending our knowledge of agriculture and with that object alone: at an early date, however, we realize that this college has a purpose to fulfill of even greater moment than that of teaching the principles of scientific farming; it endeavors to broaden the mind generally, and make men of us. This latter aim is in great measure furthered through the instrumentality of the students themselves. The man who appreciates and participates in College Life is the man who does well after leaving the sheltering wings of his Alma Mater. Therefore, notwithstanding the stress of approaching "exams," let me repeat—"Don't forget College Life."

The Y. M. C. A. Reception to the Freshmen.

This, as might be expected, took place at the commencement of the session, and came as a timely sedative to the rousing influences of the 'Initiation.'

The programme was as follows:
Piano solo, by J. D. Lawson.
Pillow fight.

Address, by President Creelman.
Solo, by Miss E. Springer.
Athletic 'Stunts.'
Speech, by Professor Harcourt.
Refreshments.
College Songs.

As is seen at a glance these items are of a somewhat varied character. It is extremely difficult to provide a programme suitable to such occasions as these receptions where it must be remembered that the greater portion of the assembly consists of new students who are entering an environment and sphere of life entirely strange to them. The difficulty lies in making these new comers feel thoroughly 'at home.' Long experience has proved that a cut and dried programme is useless, and thus it is that one such as the above is presented.

This year the evening was a great success and the entertainers are worthy of especial mention. The opening selection by Mr. Lawson was much appreciated and quickly brought the meeting to order. The 'Pillow-fight' was ludricous and, at least to the 'freshies,' instructive. The Presidential address was impressive, but at the same time was of a kindly nature, which tended to promote a feeling of good-fellowship between the students and President. The solo, by Miss Springer was delightfully rendered, and the assembly was of unanimous opinion that an encore was necessary, which was willingly acceded. The 'stunts' were much appreciated and were the cause of much mirth. Then followed the speech, by Professor Harcourt, which was much to the point. It is needless to criticise the refreshments as they have the happy knack of never wearying the audience. The evening was brought to a successful conclusion by all present singing college songs with a gusto that was worthy of the occasion.

In conclusion it may be said that all present thoroughly enjoyed themselves and the members of the first year felt that their good ship had already overcome the initial discomforts of 'mal de mer' and was now fairly embarking upon that voyage, for which she had set her sails, across the sea of life and learning.

The Philharmonic Society.

Every year sees a widening of the scope of this society. This year special attention is being paid to the compilation of an up-to-date, respectable, and essentially college song book. Last year the foundation of this work was laid in the shape of a small collection of songs without music. It now remains to improve upon this by making the book more comprehensive, and by printing the music. This college is now old enough and sufficiently well known to make a song book almost imperative, and with the hearty co-operation of each and every student it is hoped to bring this project to a successful issue this session.

Literary Notes.

On Friday, Oct. 9th, a meeting of the student body was held to discuss the advisability of entering a debating league which would bring the college into a sphere of oratory of a higher standard than hitherto encountered. Considerable controversy was indulged in, but the project was finally defeated. This movement is a step in the right direction and at some not far removed date will indubitably mature into something concrete. The material is here, and a careful system of training is all that is necessary to enable us to show our sister colleges of 'Varsity that the

advocates of the 'simple life' are able to uphold their prestige on a public platform.

The 'At Home.'

On October 1st the advantages of a system of co-education were lucidly displayed by the first 'at home' held at Macdonald Hall.

At 7:45 p. m., a long procession of "homines sapientia" of the 'unfair sex' started forth with fluttering hearts to cast their lot in the general melee at that, to many, mysterious edifice across the way. For the first fifteen minutes after arrival all was confusion. The introduction committee had not a moment to spare, but withal displayed great tact in the art of introducing people 'incognito.' The promenade cards were rapidly filled with names and soon all were ready for the first promenade. The gathering in the central hall quickly dispersed and a hush, only broken by the gentle murmuring of sweetest nothings, pervaded the building. Promenades were the order throughout the evening and alas! the time allotted for each was all too brief. The monotony was broken by the rendering of a series of selections, including several vocals, a recitation, and violin solos, all of which are deserving of the highest praise; the feature of the evening, however, was undoubtedly the able rendering of violin solos by Miss Rogers.

Punctually at 10:30 the lights showed indications of vanishing, and the 'at home' was a thing of the past. In conclusion it may be repeated that this was the first of the season's receptions, and if the others to follow are an equal success we shall have no cause to complain. The Literary Societies of the two institutions are responsible for these gatherings, and we can only hope that the outcome of their efforts is as satisfactory to them as it is to the remainder of the students participating in these functions.

The Fire Brigade.

A feature of 'College Life' this year is the fire brigade. It was inaugurated at the instigation of the Dean of residence, and promises to be a great factor in safeguarding of the college and its buildings. When we look back a few years and recall the losses that this college has sustained through fire, and recollect the disastrous conflagration that so recently consumed a valuable portion of the buildings at Macdonald College, Quebec, we cannot but realize the value of a competent fire brigade. With this end in view Mr. Friar has undertaken the work, and with the hearty co-operation of the student body he will have in a short time an efficient body of firefighters.

The Students' Council.

At a number of colleges and schools there exists a form of self-government, and there is at present a movement to bring about such a condition at the Ontario Agricultural College. A meeting of the students was called and the matter discussed. No agreement could be arrived at, and the matter was postponed. The prevalent opinion seemed to be that a so-called "self governing council" would be an excellent institution, if it merely dealt with matters pertaining to the welfare of the student body; but that if it attempted to deal with the conduct and liberty of individual students then it would not receive the support and sanction of the student body.

Second Year Work.

It is already a matter of history that the studends of the Second Year are exempted from manual work, and it is

a moot point as to which are more re lieved, the Sophs, or Mr. Douglas and the various departmen s.

The Initation.

The initiation of the freshmen is the first of the doughty deeds of the Sophomores. It is an old time custom, sometimes termed a relic of barbarism, which is extremely tenacious of life, and although at this college it takes a very mild form, it is still an event of college life.

On a certain day in September sundry and seemingly unaccountable visits were paid by the acolytes of the Second Year to both the poultry de partment and that fair city of Guelph. The object of these visits was but too plainly felt, or shall we say tasted, by the Freshmen towards nightfall. At supper time preparations were also go ing on apace in the southeast corner of the campus, and by 7 p.m. there was incorporated in that peaceful scene a twenty-foot pole with the Freshmen emblem lazily flapping in the evening breeze.

Alas! the face of this earth is ever changing, and this was but too true when applied to our present scene.

In the brief space of one half hour that flag pole was the centre of a mass of seething, surging humanity, and the sweet fragrance of the nocturnal air was polluted by the "foul" smell of "in cubator eggs."

The struggle had been raging for some time; the Freshies manfully up holding their colors—if this is not too elite an expression for that jaded ap parition of an emblem; the Sophs with equal tenacity endeavoring to raze them to the ground, and the spectators growing dubious of the result. Sud denly, however, a Soph shot up that pole like a streak of lubricated light ning, and with lusty shouts from his comrades below he rent it from its staff.

It was "Scottie Lawson," and to say that he was cheered would ill describe his reception. He was carried round the college on the shoulders of his class mates to the symbolic music of Sopho more yells, and was well nigh killed before regaining terra firma.

From this gay sight let us glance at the returning Freshies. They were glad it was over, but were indeed a sorry, spectacular sight. Some bore the sanguinary stains of decomposed tomatoes and others the more golden lustre of eggs in the last stages of putrefaction; again some were divested of raiment, especially in the matter of hats and shirts. In all they were in a deplorable condition, but had the con solation that they were little worse than the Sophs.

To create a feeling of goodwill is the object of the initiation. Whether or not it is the best means of creating this is a disputed point. However, that may be, we will conclude by congratulating the Sophomores on their performance, despite their inferiority in numbers, and also the Freshmen, who are now fairly incorporated in the college, for the good "scrap" they put up, especi ally in consideration of their unorgan ized condition at the time.

Union Debate.

The first union debate was held in Massey Hall Oct. 17th, and attracted a large audience.

Programme.

Instrumental—Mr. J. D. Lauson.

Address—Professor C. A. Zavitz, Honorary President.

Violin Duet—Misses Rutherford and Robertson.

Debate—Resolved, "That the out

look for the future of Canada is brighter than that of the United States. Affirmative—Messrs. Reek and Nunnick. Negative—Messrs Guil let and Robinson.

Piano Solo—Mr. A. MacLaren.

Reading—Miss Mackenzie.

Judges' decision. Critics' remarks.

"God Save the King."

The musical programme was in every way excellent. Professor Zavitz gave an interesting and somewhat lengthy address, dealing first with things literary, including the debating societies and their work at this insti tution, and secondly his favorite theme, the agriculture of Ontario. Miss Mac kenzie gave a recitation which delight ed her audience and consequently an encore was vociferously clamored for and granted. It may be truthfully said that since our sojourn at the college we have not heard better local talent.

The debate itself was naturally the feature of the evening. The speakers were all men of considerable oratorical ability, and each made a very credit able showing. Mr. Reek, as leader of the affirmative, made a straight for ward speech. Mr. Guillet as leader of the negative was somewhat nervous at first, though soon settled down to business. Mr. Nunnick spoke next, and delivered the most pleasing speech of the evening. Mr. Robinson was in a jocund mood and held the attention of his audience well, though possibly lost too much time in relating anec dotes. The debate was won by the affirmative.

On the whole a very enjoyable even ing was spent by those present, the only regret being the crowded condi tion of the hall. In the dim and distant future we can picture a commodious edifice erected at this college contain ing an auditorium of sufficient dimen sions to seat many of the sons and daughters of Ontario!

The Subscription Prize.

At time of going to press the sub scription competition has not closed. Quite a large number of competitors have taken part and full particulars will be published in the December issue.

Athletics.

Inter-Year Rugby.

THE success of inter-year games, in Rugby at least, need no longer be a debated question. The two inter-year games already played have demonstrated their usefulness beyond a doubt. Never before has such good form been shown by our men so early in the season, and the reason for the improvement over previous years is obvious to any one who has studied the football situation at this college.

Owing to the withdrawal of the third year team the series was left to be decided between the first, second and fourth years, and the second and fourth years were drawn against each other for the first game. It was keenly contested throughout, and the final score 5—5, was a fair representation of the merits of the two teams.

The tie made it necessary for a second meeting, and this time the seniors managed to win out by the narrow margin of three points, the Sophomores failing to score. By some splendid bucking they came within an ace of making a touch-down just a few moments before time was called, but the seniors proved themselves equal to the occasion and the ball went to the centre of the field, where it remained till the whistle blew.

The final match between the seniors and freshmen is yet to be played, and by the showing of the freshmen in practice a good game will result.

Association Football.

The championship of the City Association Football League now lies between O. A. C. and the Scots of Guelph. The withdrawal of the Guelph Rovers last spring and also of the Rockwood team, which had replaced the Rovers, left a three-cornered fight.

On September 19th we played the first game of the fall series against our old rivals the Scots. In the first half, college had somewhat the better of the play; the forwards rushing the Scots' goal and nearly scoring several times. However, just one goal resulted. In the second half, play was very even, neither side appearing to have an advantage over the other. Towards the end of the game the Scots by a quick run got past our backs and put the ball through, tieing the score. College tried hard for another goal, but in the short time left could not penetrate the strong defense of the Scots and the game ended, 1—1.

The college line-up was as follows: Goal, Shaw; backs, Unwin, Treherne; half-backs, Duff, Ryan, White; forwards, Light, Moore, McRae, Smith, Turney.

On Wednesday, September 30th, the college team journeyed to Acton to play the home team, and although the official score when time was called was 1—1, it is no injustice to Acton to say that they were fairly beaten. The play was in their territory nearly all the time, and though towards the end of the first half Acton put the ball past Irvine, it was clearly an off-side play, and a free kick should have been granted. The second half was all college, our forwards rushing repeatedly, and though but one goal was allowed,

Acton was plainly outplayed, being able to save themselves only by mak ing corner kicks and these would not have availed them had the game lasted five minutes longer.

O. A. C. were represented by the fol lowing: Goal, Irvine; backs, Unwin, Hoffman; half-backs, White, Ryan, Toole; forwards, Light, Moore, Smith, Logsdail, Turney.

We have still to play the return games with Acton, and the Scots, and in order to carry off the cup we need only win one and tie the other, so that our chances for landing the championship are good.

O. A. C. vs. Guelph.

The first real Rugby game of the season took place on the campus on Friday, September 25th, with a picked team from Guelph as our opponents, and that our boys know how to play Rugby was clearly demonstrated, for they won handily. Score, 8—5.

Guelph started in to make a slaugh ter of college, but two or three bucks from our mighty line put them on the defensive, and everybody realized that they stood little chance of winning. Play was very rough at times, the offenders coming from both teams, and several were penalized. The game created a good deal of enthusiasm, the spectators being immensely pleased at the performance of the college team.

O. A. C. team was as follows: Full back, Treherne; right half, Clement; centre half, Edgar; left half, Mc Kenzie; quarter, Knauss; scrimmage, McRae, Moore, Moorhouse; right in side, Cleverly; right middle, Green wood; right outside, Cooke; left inside, Kennedy; left middle, Cunningham; left outside, Lawrence.

A second game was played with the Guelph team on Monday, October 5th, which resulted in an easy win for col lege, the score being 11—0. Guelph was never in it, however they played a good uphill game, and deserve credit for holding the score to where it stood. The college boys showed excellent form, and it would have required a first class team to have beaten them that day.

The line-up was somewhat changed from that of the previous game, it be ing as follows: Full back, Treherne; right half, Jones; centre half, Edgar; left half, McFayden; quarter, Knauss; scrimmage, McRae, P. H. Moore, Moor house; right inside, Clement; right middle, McAleer; right outside, Lewis; left inside, Kennedy; left middle, Cleverly; left outside, N. D. McKenzie.

"Field Day."

"Field Day" may well be termed the premier day of the college year, and this year proved no exception to the rule. Further than this we say without hesitation, that the one just past was the premier "Field Day" of any ever held at this institution.

In all, six records were broken, and that alone is sufficient proof of the truth of our statement. Perhaps never before were the different events so closely contested, and never before were so many new records made. The credit for all this can be attributed to no one person. Every one connected with the Athletic Association, and with the planning and carrying out of the day's programme did their part, but if any name should be mentioned it is that of our athletic instructor, Mr. Reeds, whose untiring efforts previous to and on that day, did much towards making it the unparalleled success that it was.

Thursday, October 8th, was the date chosen for the meet. The morning

did not give promise of as bright a day as might have been desired, but by 10:30 Old Sol had managed to dispel some of the mist, and although it never brightened sufficiently to satisfy the de sires of the many cameramen present, it was really an agreeable day.

The morning's programme started with the preliminaries of the 220-yard dash, Clement and Lawson being the winners of their respective heats, with Lewis and Smith in second positions. The finals of this race were run in the afternoon, when Lawson, by a magni ficent sprint, won out, reducing the record of 24¼ seconds to 23½ seconds.

Following this was the standing broad jump, in which George Manton carried off first honors.

Then came the discus throwing, and another record was smashed, J. W. Jones making a throw of 99 ft. 3 in., which was 8 ft. 3 in. beyond his last year's record.

In the quarter-mile A. Smith set a new mark, doing the distance in the excellent time of 56 4-5 seconds; previ ous record, 58 seconds.

Following this in quick succession came the running, hop, step and jump, putting the 16 lb. shot (under 140 lbs.), running high jump, and the half-mile run. J. W. Jones captured the red rib bon in the hop, step and jump; Moore took first in the shot-put after a great fight with Hoffman, and in the high jump Cooper, a first year man, finally won out over Coglan. Smith, in the half mile made his second record of the day, running the distance in the fast time of 2 minutes 12 seconds, reducing the former record 1 3-5 seconds.

The afternoon brought crowds of spectators, the majority of whom were ladies, representing Macdonald Hall, the city and the surrounding country. They liberally applauded their favor ites, and were rewarded by seeing two more records broken and several others nearly equalled. It was pronounced by all, the best meet ever held at this col lege.

Two clowns of ancient repute, by their novel innovations, added much to the amusement of the crowd, especially to the school children, who thronged around them, completely fascinated by their laughable performances.

At 1:30 the programme was again proceeded with, the first event being the preliminaries of the 100 yard dash. The final heat of this event was per haps the most exciting race of the day. Lawson led nearly all the way, but Smith, by a long leap, managed to touch the tape first, being only the fractional part of a foot ahead of the fleet little Scot.

In the mile walk E. W. White just managed to nose out Light, lowering the record from 7 minutes 49 seconds, to 7 minutes 30 seconds

Moore won the running, broad jump; Toole the pole vault. Toole then made an effort to raise the record in the pole vault, and all but succeeded. Owing to the breakage of a pole he was some what handicapped in having to use one to which he was not accustomed.

In the shot-put Jones sustained his reputation and won out, Black being a good second.

Petch won the mile from Smith in a very close race.

Jones quite easily captured first in the hammer throw.

The 120 yards hurdle provided a great race, but Moore steadily gained on his opponents and finished in front.

Jones excelled at kicking the foot ball, making his fifth win of the day.

The (inter-year) relay was won by

Second year, in competition with First and fourth years, Third year not having a team entered.

Petch made his second win of the day in the two-mile run, lowering the record from 12 minutes to 11 minutes 44 seconds. Sammy Culp also ran a fine race, finishing second.

The last and most amusing event of the day was the obstacle race, Howell proving himself the best man at overcoming difficulties on the way, and he made a popular win.

The spectators and contestants then wended their way to the gymnasium, where, amid the cheers of their respective years, the winners were presented with their ribbons and medals by Mrs. Howitt and Prof. Day. The pent up enthusiasm could not be withheld and the winners of the medals were hoisted to the shoulders of their friends and carried triumphantly to the front.

Such a demonstration serves to show the high place the athlete holds in the estimation of his fellows, and we hope that the boys at this college may be stimulated to greater efforts along this line, and that this the greatest "Field Day" yet held, may only be the start ing point to many other greater ones, which are to follow.

The winners of the medals are as follows:

Short runs—A. Smith, medal presented by D. E. McDonald.

Long runs—C. Petch, medal given by George Sleeman.

Weights—J. W. Jones, medal presented by McMillan Bros.

Jumps—Toole, medal presented by Alex. Stewart.

First year champion—C. Petch, medal presented by G. C. Creelman.

The winners of the various events are as follows:

220 yards dash—Lawson, Smith, Clement (record), 23½ seconds.

Standing broad jump—Manton, Monk, Moore.

Throwing the discus—Jones, Black, Forsyth (record), 99 ft. 3 in.

Quarter-mile run—Smith, Clement, E. W. White (record), 56 4-5 seconds.

Running, hop, step and jump—Jones, Toole, Edgar.

Putting 16-lb. shot (under 140 lbs.)—Moore, Hoffman, Smith.

Running, high jump—Cooper, Coglan, McRosty.

Half-mile run—Smith, White, Clement (record), 2 minutes 12 seconds.

100 yards dash—Smith, Lawson, Clement.

One-mile walk — White, Light, Wright (record) 7 minutes 30 seconds.

Running broad jump—Moore, Hoffman, Jones.

Pole vault—Toole, Culp, Hoffman.

Putting 16-lb. shot—Jones, Black, Forsyth.

One-mile run—Petch, Smith, White.

Throwing 16-lb. hammer—Jones, Guillette, Collins.

120 yards hurdle—Moore, Jones, Clement.

Kicking football—Jones, Ryan, Palmer.

One-mile (inter-year) relay—Second year, First year, Fourth year.

Two-mile run—Petch, Smith, White (record) 11 minutes 44 seconds.

Obstacle race—Howell, Shepherd, Harries.

The Athletic Association was fortunate in having as referee such a distinguished person as Mr. J. Howard Crocker, whose rulings gave general satisfaction, while Dr. Reed, our popular Professor of Veterinary Science, acted in the capacity of starter.

The "Athletic Banquet."

The annual "Athletic Banquet," held on the evening of "Field Day," was no less successful than the events that went before it.

As soon as the presentation of prizes was over, the members of the faculty and the students, numbering about three hundred, adjourned to the college dining hall, where awaited them an entertainment that nobody knows how to appreciate better than college students. After the inward natures of the many present had been fully satisfied, President Lawrence called the gathering to order and asked Professor Harcourt to address the audience. At this juncture the ladies, who were to take part in the programme, entered, and were received with a hearty clapping of the hands. Professor Harcourt then proceeded with his address, which consisted of a brief outline of the history of college athletics since the inauguration of the first "Field Day." He drew attention to many of the old-time champions, emphasizing the fact that this college had ever stood for clean sport, and hoped that such a policy would always be continued.

Two well rendered musical numbers then followed, an instrumental by Mr. Roy Fraser, and a vocal solo by Miss Aird.

Mr. Crocker, the manager of the Olympic team, was then called upon to deliver an address. He spoke of the many advantages to be gained by giving athletics a place in our lives, and said that no man should be too old to enjoy some kind of sport. Combine work and athletics, he said, so that each is a help to the other. He preferred amateur sport because in his opinion professionalism often led men to use unfair tactics, and the true value of athletics was then lost.

The next number was a voilin solo by Miss Rogers, which was followed by a duet by Messrs. McLaren and Moorhouse.

The college orchestra, consisting of musicians from Macdonald Hall and from the college, then rendered two excellent selections, which brought a close to a day that shall long be remembered by those who were priviledged to participate in its enjoyment.

College Loses to 'Varsity II.

The first league game of the season was played on Saturday, October 10th, in Toronto, against 'Varsity II. Nearly one hundred and fifty enthusiasts went with the team to cheer them on, and although college did not win, nobody was disappointed with the team. In 'Varsity they were up against one of the best intermediate rugby teams in Canada, and the score, 6—0, does not by any means indicate that our boys were outclassed. From the opening of the game till the blow of the whistle at full time college never let up, and with a little improvement in passing and kicking, there is every prospect that they will reverse the score when they meet 'Varsity on our own grounds.

Hoy, the old warhorse of the half back line, was absent, and though Edgar who filled his position played a strong game, his loss was keenly felt.

College started out on the aggressive, and by their great bucking made many gains, but the fine kicking of 'Varsity halves just a little more than evened matters, and finally they scored a rouge. A little later they repeated the trick, and this ended the scoring in the first half.

In the second half with the wind in their favor 'Varsity added four more

points, making a total of six, but they had to fight for every yard they made, for college kept continually after their men, and did not acknowledge themselves beaten till the referee's whistle announced the game ended.

The college team: Full back, Treherne; right half, J. W. Jones; middle half, Edgar; left half, McFayden; quarter, Knauss; scrimmage, McRae, P. H. Moore, Moorhouse; right inside, Cutler; right middle, McAleer; right outside, J. M. Lewis; left inside, Kennedy; left middle, Cleverly; left outside, Sirett.

Honor Comes to O. A. C.

At the annual 'Varsity Athletic meet held in Toronto, on Wednesday, October 14th, the representatives from O. A. C. worthily upheld our reputation as good athletes by winning in all thirteen points, and by standing fourth in the list of competing colleges.

Six men were sent to compete, and four of these gained prizes, the other two men standing fourth in their respective entries.

Black, the man who made Jones extend himself to win the shot put on "Field Day," took third in two events, namely, putting the 16-lb. shot and the hammer-throw.

Smith did exceptionally well, capturing the blue ribbon in the half mile, also taking second in the mile.

In the broad jump and 120 yards hurdle race Moore obtained second and third respectively, and White added still another point by taking third in the mile.

Lawson and Toole, though unplaced, also deserve credit for their showing. They were pitted against some of the best men in Canada, and their positions in fourth place rank them as high class men in their particular events.

Nearly all these men are just beginning their career as athletes, and with the improvement that practice and experience will give, we feel safe in predicting for them a bright future in the world of athletics.

'Varsity II. 25, O. A. C. 2.

The score tells the tale. The return match was a sore disappointment to the college team and its supporters. They had hoped for a victory, but with 'Varsity's greatly strengthened team, such a thing was almost impossible. They did their best, and were fairly beaten, although the large score made by 'Varsity was not due so much to their brilliant playing as to the fumbling of the ball by college players at critical stages.

The defeat puts college out of the running for the championship, but no doubt exhibition games will be arranged for, and we look forward to seeing our senior team in uniform many times yet before the snow flies.

The teams lined up as follows:

College — Scrimmage, Moorhouse, Moore, McRae; wings, Kennedy, Cutler, Cleverly, McAleer, McKenzie, Sirett; quarter, Knauss; halves, Bourke, Jones, Hoy; full back, Treherne; spares, McFayden, Edgar, Clement.

'Varsity—Scrimmage, Hopkins, Bell, Caroll; wings, Patterson, Muir, Hay, Lajoie, McLaughlin, Malone; halves, Evans, Henderson, Lawson; quarter, Foulds; full back, Clarke; spares, Gago, Douglas, Greene, Wood.

Our Old Boys.

E. D. Eddy, B.S.A., 1905—The quiet man of '05 has, since graduating, kept moving, and what is more to the point, he has kept moving upwards. Leaving Guelph he went to Toronto as Assistant Editor of the Weekly Sun. After spending a year with "The Sun," he resigned to accept a position as Agricultural Editor of the Nor' West Farmer, Winnipeg. He is now on the staff of the Department of Agriculture, Ottawa, in the Seed Division.

T. C. Barber, '04, was one of the many O. A. C. graduates to heed the call of the West. Upon graduation he went to Manitoba to manage a farm owned by his brother and himself. As his light had not been hidden under a bushel, he soon received an appointment under Professor Forbe, of Illinois State Experiment Station, which he accepted, but still retained his interest in the farm. In June, 1907, in company with several others of the Experiment Station staff, he went to Louisiana in the service of the State Crop Pest Commission as Assistant Entomologist. He is investigating the Cotton Boll Weevil.

After leaving the O. A. C., Chisholm of '06 went to Ohio Agricultural College to take the position of manager of the college farm, where he had been previous to his taking his final year. At the present time he is taking a post graduate course.

Those who attended college from 1902-1903 will remember J. A. McLean, the Dean of Residence. Coming to Guelph in 1902 with a B. A. degree he added to the duties of the dean the task of taking the first two years in one. After completing his two year course he resigned his position to complete his course at Ames. That he did this with credit to himself is shown by the fact that he was chosen to be a member of the Stock Judging Team that was to represent that college at Chicago. Upon graduation he received an appointment on the staff of the Animal Husbandry Department, Iowa Agricultural College, where he has been until he resigned this fall to take the Professorship of Animal Husbandry in Mississippi State College.

One of the many Old Boys whom Professor Harcourt met while traveling in Europe this summer was Dr. Streit. The doctor was Assistant Bacteriologist at the College for two years, and left Guelph in the summer of 1903 to go into private business in Zimmerwald, Switzerland, where he is at present.

E. G. de Coriolis, '03, severed his connection with the college in the spring of 1906 to accept the position of Sugar Analyst on a plantation in Cuba. This position he resigned last November to become Chief of the Staff in the Department of Physiological Chemistry at Illinois State College, Urbana. He

is now Assistant Manager of the Ed wardsburg Starch Company, Cardinal, Ont.

While on his way to take up his position in the Animal Foods Depart ment of Swift & Co., the Chicago meat packers, J. J. Ferguson, '94, spent a few days at the college. Up till now he has been with the Department of Animal Husbandry of Michigan Agri cultural College as Lecturer. He re ports good times. May success attend him.

In a recent issue we announced the promotion of B. S. Pickett, B.S.A., to the ranks of the benedicts. His many friends will congratulate him on his further promotion to the Professorship of Horticulture in the New Hampshire Agricultural College, Durham, New Hampshire.

The New Brunswick Cold Storage Company, Limited, is especially strong in its management—H. R. Ross is Gen eral Manager. Mr. Ross has had the benefit of long practical experience in the cold storage and warehouse busi ness in Belleville, Ont., and later in Sussex, which place he left to come to St. John last October.—The Mercantile and Financial Times.

H. R. Ross is a B. S. A. of '98. From Guelph he went to Sussex as Editor of the Maritime Farmer, from which posi tion he resigned to become Secretary Treasurer of the Sussex Pork Packing Company.

A. P. McVannel, '07, spent a year at home on the farm before taking a post graduate course at Madison in the Wis consin Agricultural College. When he received his degree he was appointed Assistant Representative of the On tario Department of Agriculture, Perth, Ont., where R. S. Hamer, B.S.A. '07, is in charge of High School work.

Hartman, '07, after graduation, was appointed Lecturer in Animal Husban dry in the Minnesota Agricultural Col lege. He has resigned this summer to become Assistant Veterinarian at the Agricultural Experiment Station of North Carolina. Hartman came to the college with a V. S. degree, and soon became noted as an earnest student. As earnest in play as in work he showed that if he made up his mind to do any- thing he did it, when he beat Walter Kerr, the thrice out-door champion in the half-mile run after a summer's training. In his final year he was one of the five who went to Chicago and brought back the Bronze Bull for the second time. Those who know him predict success in whatever line of work may take up.

C. C. Nixon was also a member of the 1907 stock-judging team. After graduating he went back to the farm where he remained until he accepted a position on the staff of the Canadian Dairyman and Farming World, Peter boro, Ont.

W. A. Linklater graduated in 1900 and went to Ames to take a post graduate course. Leaving Ames he spent some time in charge of the Cor respondence School of Agriculture, Sioux City, until he was appointed to the chair of Animal Husbandry at the Washington Agricultural College. He resigned this summer to become Pro fessor of Animal Husbandry at the Oklahoma Agricultural College.

W. H. Dewar is spending his vacation at his home in Fruitland, Ont. He graduated in 1904, a specialist in Horticulture and immediately went to the Orange River Colony as State Entomologist. He has resigned from this position, but intends to return to South Africa to engage in mining.

Among the many visitors to the College in the past summer were Messrs. Lallie, '95, and Johnson. Johnson, who was accompanied by his wife, took his first year in 1902. Lallie is fruit farming near Grimsby.

Last month we chronicled the marriage of the first victim of cupid among the graduates of 1908. Now we announce the second, for R. W. Hodson was but emulating Mr. Caesar's example when he led to the altar Mae Victoria, the only daughter of Mr. and Mrs. Hunt. Those who were at the College some years ago will remember Miss Hunt as one who assisted the students so frequently and so capably in their entertainments. For the last year, however, it was found that she had less time to spare, and it was not long before the real reason was suspected by some of her more intimate friends.

Being appointed Live Stock Commissioner for British Columbia, Hodson left for Vancouver shortly after graduation. Miss Hunt followed late in September. The ceremony took place on the 4th of October in Vancouver, the Rev. Mr. Everton officiating. The young couple will reside in Victoria. The Review joins its congratulations and best wishes to those of the many friends of Mr. and Mrs. Hodson.

PROFESSOR RUTHERFORD.

Professor Rutherford, B.S.A., of the Manitoba Agricultural College, Winnipeg, has been appointed Deputy Minister of Agriculture for Saskatchewan vice the late A. P. Ketchen, B.S.A.

For the eighteen months ending December, 1902, Mr. Rutherford, held the position of Dean of Residence and resigned at that time to complete his course. He graduated with the class of 1903 and was immediately appointed to the Assistant Professorship of Animal Husbandry at Ames, Iowa. In May, 1904, he was made acting head of the department during the absence of Professor Kennedy and given direct supervision over the co-operative range sheep-breeding experiments. In June, 1906, he resigned to take up his new duties as Professor of Animal Husbandry at Winnipeg, which position he has filled most ably.

A. J. Dickson, B.S.A., '06, took the course in the School of Forestry at Ann Arbor, Michigan, graduating with the degree of M. S. F. He has received

an appointment on the staff of the Forestry Branch of the Department of Agriculture, Ottawa.

Cupid still wages his war with the sons of men. The realization that things are not as they seem and that single blessedness does not always satisfy comes to most men. In testimony of this R. B. Birley, forsaking his bachelor brethren, joined himself "for better or for worse" to Essie May Taylor, of Tuxford, Sask. The ceremony was performed on the 29th of August at the manse, Moosejaw, by the Rev. S. MacLean.

Birley took the associate course with the class of 1906, and returned to his home near Paris, Ont., before going to Tuxford, where he now resides.

H. R. MacMillan, B.S..A, '06, writing from Cardston, Alta., under date of Sept. 16th, says: "Since last week I travelled with fourteen O A. C. men, all of whom I met casually. There isn't a prominent man in agriculture in this country it seems but O. A. C. men." McMillan is engaged in Forestry work in connection with the new National Park.

Living in the County of Victoria eight miles from Lindsay, is Mr. Peter J. Wilkinson, who obtained his Association Diploma in 1879. Before settling down in Ontario Mr. Wilkinson thought it wise to see something of the world. Consequently the year '80 found him in attendance at the Royal School of Gunnery, Kingston. From '82 to '89 he lived in various parts of Manitoba, Saskatchewan, British Columbia, Oregon and Washington.

After leading this nomadic life for a few years he resolved to return to his native land and settled on the old homestead in 1890. Since that time he has been a successful farmer, and has now a fine herd of Dairy Cows and finds a ready and profitable market in Lindsay for his dairy products. Mr. Wilkinson occasionally visits O. A. C. and delights in talking over his College days. His post office address is Cambray.

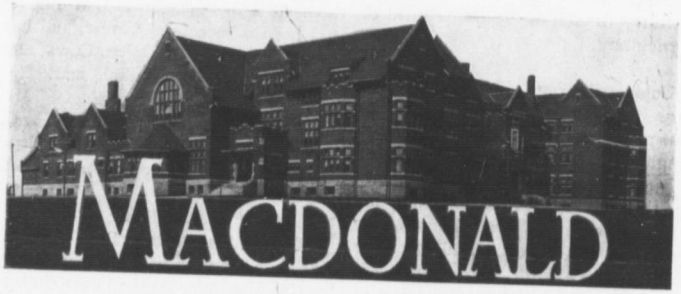
Mr. J. Albert Hand, B. S. A., who has been lecturer in Field Husbandry at the Manitoba Agricultural College during the past year, recently resigned to accept a position on the staff of the Farmers' Advocate, London, Ont.

W. J. Carson, '02, Professor of Dairying in Manitoba Agricultural College, has also resigned.

W. K. Farlinger, '76-'78, was one of the students to take a course at the O. A. C. in its pioneer days. Since then he has resided at the comfortable family home at Morrisburg, Dundas County. Though not immediately engaged in the practice of agriculture now, his interest in agricultural affairs finds scope in the fulfilment of his duties as Secretary of the Dundas County Agricultural Association.

L. C. Barker, '04, who will be remembered from his prowess as a gymnast, is at present engaged on the Crop Testing Committee with headquarters at Baton Rouge, Louisiana.

R. H. Crane, '01-'03. When at college Crane paid particular attention to the care and management of chickens. His aptitude in this is demonstrated by his appointment as head of the Memphis branch of the Swift Co.'s poultry department.



Nature Study Course.

MACDONALD Hall was seen in quite a different aspect this summer, when the doors were thrown open to lady teachers taking the summer school course at the Guelph Agricultural College. It could well be named "Liberty Hall," for without rules and penalties all were free to come and go at will. Not only was the hall made public property, but through the President's kindness every department of the O. A. C. was thrown open for observation and use.

Besides the Nature Study course there were three other courses, viz., Elemenetary, Agriculture, Household Science and Manual Training, (a) card board work and art, (b) wood working. All this work was carried on very suc cessfully.

The total attendance numbered eighty students, coming from various parts of this Province, other Canadian Provinces and the United States. Seven were from Wabash, Indiana.

The Nature Study students seemed as busy as anyone, for usually one half day was spent in indoor work, attend ing lectures on Horticulture, Physics, Entomology, Forestry, etc., while the

A SCHOOL GARDEN. *Photo by J. Buchanan.*

other part was spent in work in the fields and woods, where students were brought into direct touch with the common flowers, weeds, trees, birds, insects, etc. One-half day a week was always spent in visiting the different factories of the city.

The time outside of school was used to good advantage, for various collections comprising flowers, insects and seeds were made. The evening lectures on English, Astronomy and other interesting subjects were well attended. Then, too, much time was devoted to garden work where many interesting experiments were attempted. The students all appreciated the work of Mr. Howes in this connection, for he gave his time so willingly to this work.

One very enjoyable feature of the Summer School was our Saturday outings. Beside affording a little holiday, great benefit was derived from the open air lectures given by different members of the staff on the natural growths of Rockwood and other neighboring towns.

THE NATURE STUDY CLASS IN 1908.

At the close of the session an "At Home" was given to the staff and students. An interesting programme was prepared, one item taking the form of a pageant, in which the different classes were represented.

The school closed July 31, and regret was expressed on all sides that such a pleasant and profitable month must end. The success of the whole school was due largely to the untiring efforts and interest manifested by our Principal, Professor McCready.

Dietetics for Nurses.

BY S. HADWIN.

The conditions in a great number of training schools for nurses are very far from being ideal, and the nurses graduate feeling very dissatisfied with the training received; especially in one respect.

In many hospitals they are given excellent lectures on fevers, drugs, etc., but the subject of food and diet, which is really such an important one, is often neglected, and sometimes altogether omitted from the curriculum of some schools.

In some cases it is taken up in a very inadequate way in the form of perhaps twelve lectures on invalid cookery, practically demonstrated.

In others where we have diet kitchens, the nurses spend a varying time each in turn in that kitchen, either under supervision of a graduate nurse or a senior nurse. They probably do the greater part of the cooking, especially in the preparation of light special diets, very frequently learn more from experience than from instruction. Consequently the result of this is that nurses graduate without knowledge of the value of food, chemically, etc., and sometimes having very little knowledge of cookery. When doing private or institutional work they will find this very much to their disadvantage, a fact which they deplore more than anyone else.

The ideal course is one which I know prevails in some of our Eastern hospitals, one in which the nurses have a preparatory course of perhaps, six months—the rest of the time being taken up with practical work.

In this course she should be taught by lectures on Domestic Economy, and by practical work in this subject. She should have lectures on foods, their chemical, physical, physiological and economical value; the different diets in use in different diseases; the diagnostic value of foods and with practical lessons in cookery and invalid cookery; also lectures on nursing, ethics, and others on drugs, physiology, fevers, etc. All these should come before she has taken up the practical work for two reasons, one, that she may be better able to understand the practical work and do it more intelligently; another, because nurses after a hard day's work are not capable of much brain work.

One of the chief obstacles to the following out of this method of training in smaller hospitals, in some of the Southern States and in Western Canada, has been that superintendents have found great difficulty in getting suitable people to fill these posts. Therefore a great field is open to any woman who has taken a course in Dietetics and Domestic Economy, and is competent to fill these posts. When such women have further demonstrated their usefulness, and their value has been recognized, the demand will be sure to increase.

Y. W. C. A.

The first Y. W. C. A. meeting of the year was presided over by Miss Bailey, the President. The meeting was opened by a short service of song after which Miss Bailey spoke to the assembled girls upon the work, both in

the Y. W. and the Bible Study Classes. Miss Ferguson concluded the address with prayer and with more singing the meeting broke up.

The next meeting was also taken by Miss Bailey, who spoke briefly up on the work and play of the conference at Silver Bay, which she attended dur ing the summer.

Mr. Angle, of the Ontario Agricul tural College, took the meeting the next Sunday evening, speaking help fully upon the subject of Character Building.

The following week the meeting was taken by Miss Ferguson. A paper was read by Miss Gromitt, entitled "In a Ruined Chapel," which proved of great interest.

Our last Y. W. was addressed by Miss Tennant, who gave a very inter esting discourse upon Friendship.

Initiation ! ! ! !

The presence of all newcomers is requested in the gymnasium at 8 p. m. sharp. No getting free as the cops will be around.

This notice, ostentatiously displayed on the bulletin boards at Macdonald Hall on the dismal morning of Satur day, 19th of September, struck terror to the hearts of the already forlorn and homesick Juniors. However, the clos ing injunction (coupled with the ap pearance of the energetic body of seniors) was of too earnest a nature to be unheeded and the stern looks of the Seniors as they hurried to and fro but increased the apprehension.

Promptly at eight o'clock, a tremen dous din being heard in the south of the building, the trembling Juniors re luctantly made their way to their fate. When they had taken their seats in the shadowy gymnasium and the lights were turned on, they found themselves confronted by as imposing a court as ever struck terror to heart of criminal. Her Worship, Judge Casey, occupied the chair, while upon the bench were Miss Lucie Bailey, K. C., and Miss Sidney Aird, Clerk of the Court. The Jury was composed of twelve honor able Seniors. Court was formally opened by a neat address from Her Worship, after which the crier, Miss Ellis, called upon the first two victims. Two stalwart constables escorted the convicted ones to a small table, upon which was a dish of water, soap and towels, and they were requested to "purge themselves from Junior contam ination by using these articles freely." After this ceremony they were led to the dock. The Clerk then read the list of rules as comprised by the Senior Body, some of which were as follows:

"Any Junior receiving more than two letters in one day must share up with Seniors. Hymns and Home, Sweet Home must not be played for at least ten days. Torrey and Alexander played with one finger, entirely de barred. No matter how crowded the cars may be, the Senior must have a seat. There must be no poaching on the Seniors' O. A. C. reserves. No tooth brushes or other toilet articles belonging to a Senior may be used un less by special permission of said owner."

After these were read the oath was administered and the prisoner was sworn in on a Revised Edition of Food and Dietetics, by Hutchison. The Counsel then cross-examined the pris oner, some of the questions asked being: "What did you think of the O. A. C. students who met you at the station? (To save the conceit of the students the answer will not be

printed). "What did you think of your first meal at Macdonald?" "I wanted more!" An especially fresh Junior was asked, "How long she thought she had been in Macdonald."

The second prisoner was found guilty of contempt of court, and was sentenced to speak for one minute on "mud," which sentence she performed very ably. Once passed the Jury the way seemed clear, but as the prisoner descended from the court she was met by a decided young woman who presented her with a handful of salt which she persuaded her would benefit her constitution as well as her actions. The crier's list being completed, the Seniors mingled with the newcomers in a jolly dance after which fruit was served. Macdonald yells and cheers for the Juniors, which were responded to with "For They are Jolly Good Fellows," closed the evening.

THE SENIOR CLASS. *Photo by E. Rogers.*

ON THE JOYS OF BEING A SENIOR

BY ONE OR TWO WHO KNOW.

How shall I be a poet? How shall I write in rhyme?
How shall I crowd so vast a theme in to so short a time?
Nay, then, it is beyond my skill, and all I dare to try
Is just to quote some common fact—oh, how the moments fly!

At break of day the bliss begins—A Senior gets to work
Before the sunlight tints the sky—no chance for her to shirk.

She has to slave from then till dark, as shall be told below;
She has to talk until she sounds like any aged crow;
She has to live an upright life and no excuse will serve;
She has to love her fellowmen as much as they deserve;
She has to be just where she ought, just when she ought to be;
She has to smooth the way for all—and smooth it patiently;
She has to see that rules are kept, as she has learnt they can;
She has to—but another now will "carry on the plan."
That's what Miss Watson says to us in H. K. 33—

And requisitions long we face on naught but bread and tea,
And we are handed chains of keys, shown piles of pots and pans—
While filtered coffee—mitred beds—rough and reddened hands—
Our daily portion now we own—for Seniors now are we.

While waiting on the teachers is the balm of life—not quite.
We're chasing cups and saucers both morning, noon and night.
We crumb the table in their laps, it matters not a bit,
And when the beefsteak slip'd the plate—Hurrah, for whom it hit!

We cram for days to make a plan fit for a demonstration,
But when we come before our class we're filled with consternation;
Our fingers tremble, voices quake, and many are the blunders,
But when we're thro' the others say—they think we have done wonders!

Sixteen gaping little faces, sixteen pairs of hands to wash,
Sixteen minds to fill with wisdom, sixteen madcap imps to squash.
This, indeed, means joy o'erflowing, this is what occurs to each,
When Miss Greenwood gravely tells her "Monday is your day to teach.'

You may talk of demonstrating—and of chills adown your back,
Of waiting on the table and of teaching too—alack!
But for finest kind of torture—beats the thumb-screw and the rack,
Commend me to housekeeping in the apartments of the Mac.

By what is written up above, it may be clearly seen
How hard it is to always be what "Senior Girl" should mean.
She must be good; she must be kind; she must be just and true,
Yet—tho' she may be hard to find, we think she's nice—don't you?

Concerning Ground Hockey.

Ever since Macdonald Hall was opened the need of some outdoor game between the close of the tennis season and the first fall of snow has been keenly felt. Basket ball, although it has done its best to keep alive the sporting instinct during this trying in terval, has really failed; because here it can only be played indoors in the

FIELD HOCKEY ENTHUSIASTS. *Photo by L. Bailey.*

gymnasium, and most people prefer to spend these brief autumn months in the open air. The game of ground hockey, which has long been popular in England, and which has recently come to us across the sea, seemed to be "just the thing." The idea, once suggested, was eagerly taken up, until at the time of writing the club consists of thirty-four enthusiastic players, determined to fulfil the promise of their inauguration. Not being satisfied with the prospect of merely all-college matches, the officers of the club undertook to lay the matter before their friends in town, with the result that the Guelph girls, who are noted for their sporting spirits, rose at once to the occasion and are also organizing a club team.

Very little encouragement seems likely to be necessary, yet everyone has offered such kindly assistance, and many have been so practically helpful that the club should soon stand in good working condition, and accomplish the very utmost that is possible in the weeks that still remain to it before the weather breaks. Every hope of happy, healthful afternoons in this wonderful sunshine is surely before it, and great are the expectations, and eager the interest fixed upon that longed-for event—the first town match.

So far, good—but let it not be imagined that ambition stops here. The club once fully organized, is organized for all time, and it is the prayer of every loyal member that in the years to come the glorious game may well justify its institution, and Macdonald Hall forever hold its own!

A Walk on an Autumn Day.

BY A. HOMEMAKER.

It was autumn, and late October. The morning had been a crisp, invigorating one; so, after lunch, when my cousin suggested that we should take a walk out to see the haunted house of the neighborhood—for each part of Scotland has its haunted house—we were all eager to go.

It was about half-past three when we started. The road along which we

went wound in and out between the hills, looking from a distance, like a tangled ribbon dropped by some care less child in a vain attempt to unravel it. To the south, we could see a small but beautiful loch, studded with islets. It was towards this loch we were going. From time to time we would lose sight of it behind some hill, but not for long; with each fresh glimpse the wild beauty of the wind swept half-barren trees, standing clear against the sky-line, impressed itself more vividly on our minds. As we walked on the houses became fewer and fewer, until there was not one to be seen.

Not one? Yes, there was one! Sud denly turning a bend in the road, we found ourselves directly in front of the famous haunted house. It was built of stone, the style of architecture being so irregular as to lend it a mysterious appearance. As we stood, the mystery of it grew on us, the loneliness of its situation, and the forbidding sternness of its massive stone-work, until I no longer wondered that the superstitious Scotch people of the surrounding coun try had chosen it as a seat for their fancies.

But it was growing dusk, and soon we had left the haunted house and its traditions far behind us, and were on our way home by a shorter road that led through the preserves of neighbor ing estate. We had considerable diffi culty on following our path, as the ground was covered, and re-covered, with the numberless rustling leaves that hid it. After losing our way twice we at last emerged on the high way.

The sun was setting behind the dist ant, heather-covered hills, that lent a sombre blue to the vivid hues of the sky, which, as we neared home, slowly darkened and faded from our sight.

The Class of H. E. Domestic Art Department.

"*Stitch, stitch, stitch!*"—yea, and em broider, and draft;
And study minutely how cotton is made—
(The effort will fair send you daft!)
Mark the styles, that you may into fashions that are,
Model fashions that have been or were.
In the making of hats gain repute as a star,
By a twilt or a touch here and there,
Pay heed to materials—how they will wash,
What garments are suited to each;
Let colors and lines ever dwell in your minds—
Learn all that your teachers may teach! !"
Some such thoughts as above well drilled into our heads
Has made us, as any may see,
Devoted, enduring, industrious maids—
For seamstresses now are we! ! !

Locals.

The Charge of the One Hundred.

Half a league, half a league,
Half a league, onward,
Into the Freshmen mob,
Rushed the one hundred.
Forward the Sophomores
"Charge for the pole," he said;
Into the Freshmen mob
Rushed the one hundred.

Tomatoes to right of them (the Freshmen),
Cucumbers to left of them,
Eggs, not quite fresh, to them,
Volley'd and thundered;
Stormed at, without that smell,
They might have stood it well,
But when eggs broke; well, well;
Good English blundered.

Tomatoes to right of them,
Stale eggs to left of them,
Molasses all over them,
Burst, smelled, and thundered,
Stormed at with flour as well,
So those poor Freshmen tell,
Soon down the pole then fell,
The flag they'd defended.
Back from that awful swell,
With all that covered them,
Freshmen one hundred.

When shall Sophs' glory fade?
O that great fusilade,
All the staff wondered
Honor the fusilade
Honor the sport they made
Sophomore Hundred.

Freshman (looking at results of entrance exams.)—Gee! That fellow Maximum must be a clever fellow; he's right at the top, with one hundred and twenty marks more than the second man.

Fair Maiden (to member of Reception Committee, wearing Macdonald Hall badge)—Excuse me, sir, but do you represent the Massey-Harris?

In Horticulture Class: Mr. Crow—Name one of the most common of our Ontario vegetables?

King—Sour-Krout.

Freshman (at Anderson's)—I want a copy of English Anthopology, please.

Professor Dean—Mr. W. H. Smith, what do the majority of cheesemakers do in the winter time?

Smith—Hibernate.

Orser (Economics)—Mr. LeDrew, can you tell me what color the blue box is? I heard that it is white.

Mr. L. D.—Possibly. But I should imagine that a blue box would be rather inclined to the color of its name.

King (discussing the Locust)—Do the locusts scratch out the hole before they sit in it, or do they sit in it first and then scratch it out?

Mr. Keegan, can you tell the class name of any specie of poisonous animals existing in Ontario?

K—Mad Dog.

Dream of our over-worked biologist.

A quick clip, clip in the darkness,
Somebody laughed and fled,
And the Freshman awoke with a naked lip,
Imagine the things he said.

A quick tip, tip, in the darkness,
Sophomores laughed and fled,
And smothered words we cannot print
Emerged from beneath the bed.

A quick wish, wash, in the darkness,
Somebody laughed and fled,
And a wet bedraggled Freshman,
Selected the words he said.

A quick dab, dab, in the darkness
Somebody laughed and fled,
And a Freshman changed to a black-man,
Can't mention the things he said.

A quick skidoo in the darkness,
Every Sophomore fled,
As the dean of the residence appeared,
They didn't hear what he said.

Mr. Jarvis—If any of the members of this class know of any case where a boy has been killed as a result of a spider bite, Dr. Bethune would be pleased to hear of it.

I notice that Thorpe has not yet removed the bristles from his upper lip. Well, I suppose that nobody has noticed it there.

Last year the brain of a certain student conceived that William the Conqueror discovered the United States. Martin of Class '11 has had a similar happy thought, for he was enquiring of the Librarian for a copy of "The Life of the Duke of Wellington" containing an account of "The Charge of the Light Brigade."

The following appeared in a composition on "The Reading Room of the College Library": "On entering the room, one is particularly struck with the bronze bull."

How slow some people are to understand "why" was plainly shewn a few days ago. Orser was thumping the piano, to his own satisfaction, and to the disatisfaction of everyone within hearing. As the last notes of the co operation of "Home, Sweet Home" and "Break the News to Mother" died in agony, Orser was heard to enquire in an astonished voice, Where all the fellows had gone to and why they had gone there.

Knight—Say, Reg, when in Toronto yesterday, I saw the largest woman I ever saw.

Allan—Y-e-s?

Knight—Why, I couldn't get my arms around her.

Allan—What!!!

One held a lock of thick black hair,
One held a lock of brown,
One had his foot in the other man's mouth,
As the referee yelled "Touch-down."

At the foot of the list of men who represented the third Rugby team, playing against the Guelph Collegiate Institute, there appeared the names of Baker and Daly as spares. To-day they are thanking the gods of fate that they were spared.

One half a dozen cans of concentrated wit,
And half a dozen hypodermic squirts,
To inoculate the students to joke and pun and skit,
To enable us to know them by thir works.

Freshette—Can you direct me to the Bazaar's Office, please?

The Royal Military College

THERE are few national institutions of more value and interest to the country than the Royal Military College at Kingston. At the same time its object and the work it is accomplishing are not sufficiently understood by the general public.

The College is a Government institution, designed primarily for the purpose of giving the highest technical instructions in all branches of military science to cadets and officers of Canadian Militia. In fact it is intended to take the place in Canada of the English Woolwich and Sandhurst and the American West Point.

The Commandant and military instructors are all officers on the active list of the Imperial Army, lent for the purpose, and in addition there is a complete staff of professors for the civil subjects which form such a large proportion of the College course. Medical attendance is also provided.

Whilst the College is organized on a strictly military basis the cadets receive in addition to their military studies a thoroughly practical scientific and sound training in all subjects that are essential to a high and general modern education.

The course in mathematics is very complete and a thorough grounding is given in the subjects of Civil Engineering, Civil and Hydrographic Surveying, Physics, Chemistry, French and English.

The strict discipline maintained at the College is one of the most valuable features of the system.

In addition the constant practice of gymnastics, drills and outdoor exercise of all kinds, ensures good health and fine physical condition.

Seven Commissions in His Majesty's regular army are annually awarded as prizes to the cadets.

Three Commissions in the Permanent Force will be given annually, should vacancies exist, to the graduating class, viz.:—Every year one in the Infantry; and each alternate year:

One in the Engineers and one in the Horse Artillery.

One in the Cavalry or Mounted Rifles and one in the Garrison Artillery.

Further, every three years a Commission in the Ordnance Corps will be given to the graduating class.

Three 2nd class clerkships, or appointments with equivalent pay, will be offered annually to the graduating class, such appointments to be in the following Departments, viz.:—Public Works, Railways and Canals, Inland Revenue, Agriculture and Interior.

The length of the course is three years, in three terms of 9½ months' residence each.

The total cost of the three years' course, including board, uniforms, instructional material, and all extras, is from $750 to $800.

The annual competitive examination for admission to the College will take place at the headquarters of the several military districts in which candidates reside, in May of each year.

For full particulars of this examination or for any other information, application should be made as soon as possible, to the Secretary of the Militia Council, Ottawa, Ont.; or to the Commandant, Royal Military College, Kingston, Ont.

OFFICIAL CALENDAR

OF THE DEPARTMENT OF EDUCATION

December:

18. Provincial Normal Schools close, first term.
22. High Schools, first term, and Public and Separate Schools close
24. Last day for notice of formation of new School sections to be posted by Township Clerks. (Six days before last Wednesday in December).
25. Christmas Day. (Friday).
High School Treasurers to receive all moneys collected for permanent improvements. (On or before 25th December).
New Schools and alterations of School boundaries go into operation or take effect. (Not to take effect before 25th December).
By-law for disestablishment of Township Boards takes effect. (Not until 25th December).
30. Annual meetings of supporters of Public and Separate Schools. (Last Wednesday in December, or day following, if a holiday).
30. Reports of Principals of County Model Schools to Department, due. (Before 31st December).
Reports of Boards of Examiners on Third-Class Professional Examination, to Department, due. (Before 31st December).
31. Protestant Separate School Trustees to transmit to County Inspectors names and attendance during the last preceding six months. (On or before 31st December).
Trustees' Reports to Truant Officer, due. (Last week in December).
Auditors' Report of cities, towns and incorporated villages to be published by Trustees. (At end of year).